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Planning a Tuberculosis Sanatorium: Room and Ward Design and Equipment[1]

T. B. Kidner, of Kidner and Rosenfield, Architects and Consultants, New York City

IT IS necessary in dealing with the subject assigned to me to review briefly the history of the institutional care of the tuberculous, which, except in a few isolated instances, covers a period within the memory of many persons living today.

About 85 years ago, George Bodington, an obscure country practitioner in England, became convinced that fresh air, both by night and day, was all-important in the treatment of tuberculosis. Acting on this conviction, he established a sanatorium in which to carry out the idea. In common, however, with many other pioneers in various fields of human endeavor, Bodington met with great opposition; for tuberculosis, or "consumption," as it was then generally termed, was then and for many years afterwards regarded as being caused or aggravated by exposure to the air. The accepted treatment at that time was to shut up the tuberculous individual, allowing him little or no open air, and shutting out completely the night air, which was considered especially harmful. In consequence, after a struggle against prejudice and actual persecution, Bodington gave up his experiment and his sanatorium actually became an asylum for the insane.

A little later, Brehmer, a German physician who had been greatly interested in Bodington's ideas, opened a sanatorium at Goebersdorf where, in spite of much ridicule and opposition similar to that experienced by Bodington in England, he eventually succeeded in convincing many of his medical colleagues that open-air treatment was far more successful than any other method.

Dettweiler, an assistant of Brehmer's, while agreeing with him as to the value of open-air treatment, believed in addition that rest was of extreme importance and so there was developed the open-air rest cure. As tuberculosis is a wasting disease, the importance of nourishing food was also recognized and thus it came about that the formula of fresh air, rest, and proper food was developed.

The enormous growth of the sanatorium idea during the past forty years was the direct consequence of the discovery and wide recognition of the value of this "hygienic treatment," as it has been well termed, and until comparatively recent years the sanatorium for tuberculosis was merely a place in which the formula of fresh air, rest, and proper food could conveniently be applied. In fact, even today, notwithstanding that various other methods in the treatment of tuberculosis have been successfully developed, this formula still remains of prime importance in the treatment.

The pioneers in the sanatorium movement in America, Dr. Trudeau in New York State and Dr. Bowditch in Massachusetts, followed the methods of treatment that had been developed in Europe. The early sanatoria were therefore exceedingly simple structures (often, unfortunately, very flimsy and inflammable), and as far removed as could possibly be from the idea of a hospital for the care and treatment of sick persons. Dr. David R. Lyman, the well-known tuberculosis specialist, said recently in this connection, "Our first idea of a sanatorium twenty years ago was, in general, a porch, a reclining chair, a rule book, three quarts of milk and six eggs daily and a chest examination once a month; that was considered a very good sanatorium regimen."

Today, however, particularly as regards the more seriously ill patients, the accommodation provided in a modern, up-to-date sanatorium for tuberculosis differs but little from the accommodation provided in a modern general hospital. This reference to the condition of the patients brings me to the first practical question that confronts an architect who is called upon to plan a sanatorium; namely, the classification of the patients, and the proportion of the total number of beds that should be provided respectively for each group under the classification.

The Classification of Cases

For purposes of sanatorium treatment, tuberculous patients are usually grouped broadly into three classes:

a) Bad or "infirmary" cases: acutely ill, requiring bed care and regular nursing.

b) Semiambulant cases: able to dress and to walk to the congregate dining room for meals, but, at first, not able to take further walking exercise.

[1]Read at the Hospital Clinical Congress, Milwaukee, Wis., June 23, 1927.

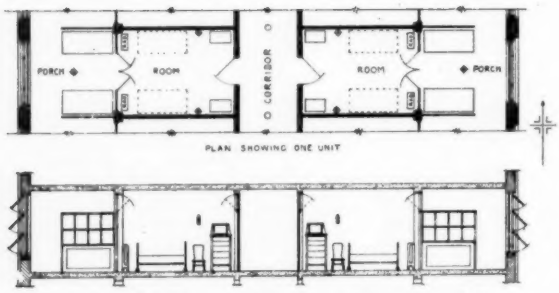


FIG. 1. ROBERT KOCH TUBERCULOSIS HOSPITAL, ST. LOUIS.
Typical Arrangement When Long Axis of Building Is North and South. By City Architect, St. Louis, Mo.

c) Ambulant cases: able to take a certain prescribed amount of exercise daily, which is increased as the patients' condition improves.

It is not possible to state definitely the proportion of cases in each of these classes, since it varies in different institutions, and, from time to time, in the same institution. This broad classification into three groups has also various subclassifications, differing according to the practice of the institution concerned. During recent years, from various causes, there has been a steady rise in the proportion of infirmary cases in sanatoriums throughout the country. It is, therefore, my measured judgment, based on considerable experience of the problem, that in planning a sanatorium today, accommodation should be provided for beds in the following proportions:

Infirmary cases—not less than 50 per cent.
Semiambulant cases—30 per cent.
Ambulant cases—not more than 20 per cent.

Since, however, the average number of infirmary cases in sanatoriums in this country today is considerably over 50 per cent of those present, the accommodation for semiambulant patients should be of a modified infirmary type. If it should happen at any time that the accommodation for infirmary cases is overtaxed, it is then possible to give such cases proper care in the quarters provided for semiambulant cases.

Some General Considerations

Before taking up the question of the planning of the patients' quarters in detail, it is necessary to consider briefly the question of the orientation of patients' buildings in a tuberculosis sanatorium or hospital.

In the colder parts of this continent, the general practice is to face the patients' building due south; the long axis of the building lying east and west. Most of the patients' rooms are located on the south side of the building, with a few on the east and west ends; the service rooms being arranged on the north side. A little farther south, it is well to arrange that buildings of this type face about S. S. E., and in the southern part of the continent it is advisable to face them almost due east, so that the hot afternoon sun will not fall on the patients' rooms. In some of the northern states, however, a few sanatoriums have been constructed with the long axis of the patients' buildings running north and south. This involves the arrangement of a central corridor, with patients' rooms on each side of it; the service rooms being usually placed at intervals on one or both sides. (See Fig. 1.)

Planning for Infirmary Cases

In referring to the changes in sanatorium planning that have taken place in recent years, I remarked that, particularly with regard to infirmary cases, the accommodation provided in a modern tuberculosis sanatorium differed very little from that provided in a modern general hospital, and I wish now to develop that statement.

First, multi-story buildings are entirely suitable for tuberculous patients. Because the early buildings were one-story, wooden structures, for which that unpleasant term "shack" was all too appropriate, the idea became quite general that tuberculosis could be treated only in one-story buildings.

Provided that the type of construction is strongly fire resisting, multi-story buildings are, I repeat, entirely suitable for the treatment of persons suffering from tuberculosis; particularly cases in the infirmary stage of treatment. It is unnecessary to dwell on the economy

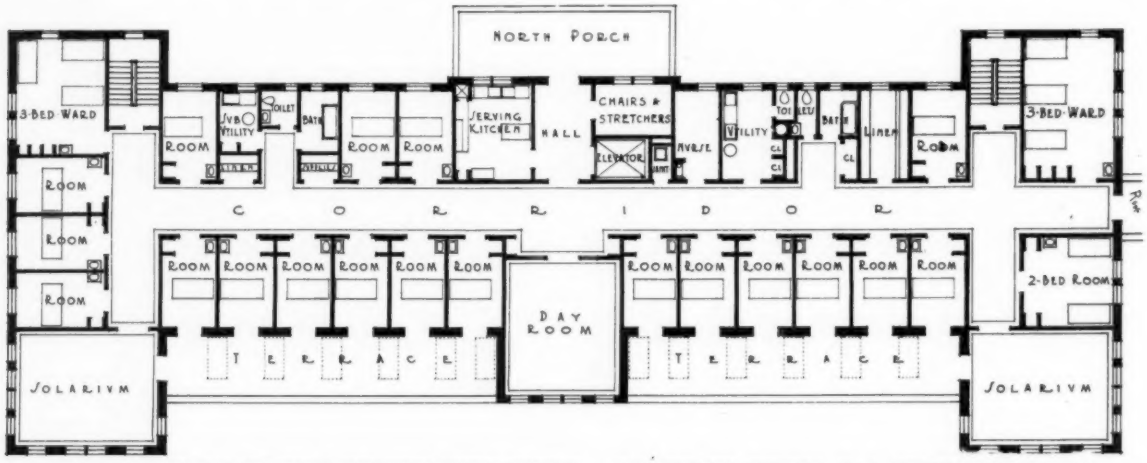


FIG. 2. ADDITIONAL HOSPITAL BUILDING, ESSEX COUNTY SANATORIUM, VERONA, N. J., FOURTH-FLOOR PLAN.
Sutton, Sutton, & Calkins, Architects; Kidner & Rosenfield, Consultants.

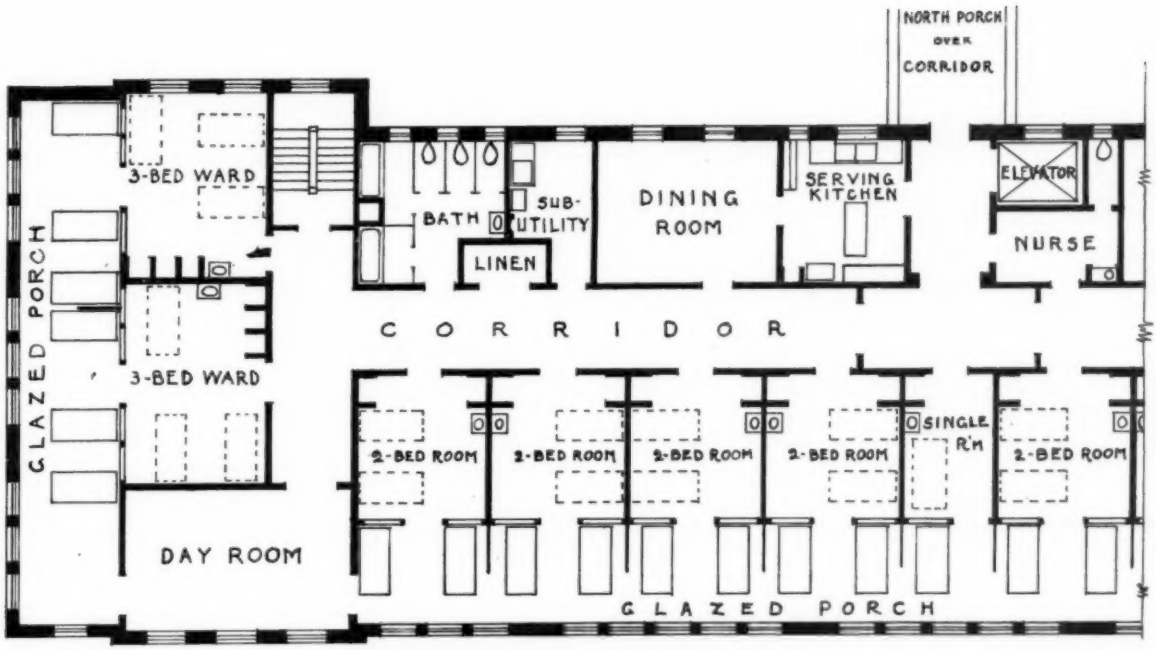


FIG. 3. QUARTERS FOR DRESSING-GOWN CASES.
INFIRMARY BUILDING, PITTSBURGH LEAGUE SANATORIUM, PITTSBURGH, PA.
SECOND-FLOOR PLAN (HALF).
E. P. Mellon, Architect. Kidner & Rosenfield, Consultants.

of multi-story buildings, in comparison with one-story structures; alike in first cost and in the cost of operation.

The second point is that, as in modern general hospitals, the old type of open ward, with a large number of beds, is no longer provided in first-class tuberculosis sanatoriums. A considerable proportion of the beds in the infirmary section in modern sanatoriums are in single rooms. In fact, in one sanatorium infirmary building of about 90 beds recently opened in Denver, Colo., the accommodation consists entirely of single rooms. In another project that my office has in hand at present, out of 106 beds in the infirmary unit, 72 are in single rooms.

In my opinion, not less than 40 per cent of the accommodation for patients in the infirmary unit of a sanatorium should be in single rooms. The rest of the accommodation should be in 2-bed rooms and, perhaps, one or two 4-bed wards.

The next point to be considered is that of porches for open-air sleeping. It is usual in public sanatoriums to use the single rooms in the infirmary unit for patients who are acutely ill. For most of such patients, all the fresh air necessary can be provided by suitable windows; although it should be possible to wheel any patient in his bed to a porch, if required.

In some recent planning, many of the single rooms open on a terrace, on which the beds can be wheeled in fine weather. Enclosed porches or solaria, to be used in common by a group of patients, are also provided. (See Fig. 2.) For the rest of the patients in the infirmary unit, it is advisable to provide porches adjoining their rooms or wards. This leads to our next consideration; namely, the various types of porches that are provided for sanatorium purposes, examples of which are shown in the accompanying illustrations of various types of porches that are in use today, as follows:

The Private Sanatorium Type

Fig. 4 (*a*). 3-sided single porch.
Fig. 4 (*b*). 2-sided single porch.
Fig. 4 (*c*). Porch serving two rooms.

Public Sanatoriums

Fig. 5 (*a*). Porch serving two single rooms.
Fig. 5 (*b*). Porch serving two double rooms.
Fig. 5 (*c*). Porch between rooms.
Fig. 5 (*d*). The Congregate type.
Fig. 3. The Continuous type.

Enclosing Porches With Glass

It is appropriate at this point to discuss a question that has received increasing attention during recent years in the colder parts of this continent; namely, the desirability of enclosing the "cure" porches with glass. All sanatorium porches must, of course, be screened to exclude flies and mosquitoes, but many years ago

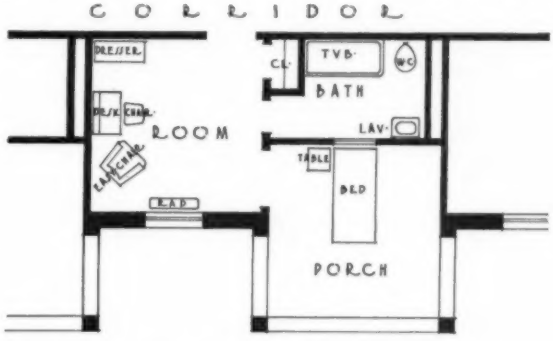


FIG. 4 (A). SUITE, GRADE "A."
Kidner & Rosenfield, Architects and Consultants, New York City.

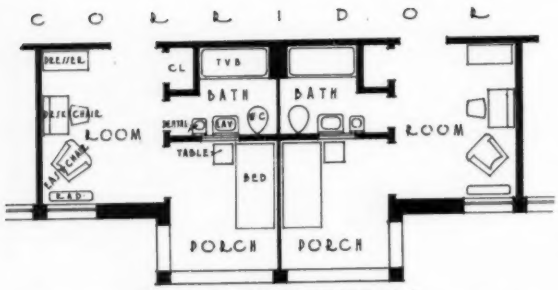


FIG. 4 (B). SUITE, GRADE "A."
Kidner & Rosenfield, Architects and Consultants, New York City.

sanatorium authorities in the colder parts of this country found it necessary to provide, in addition, shelter from driving rain and snowstorms which would otherwise make the porches untenantable for considerable periods in the winter.

The usual solution for this problem some years ago (and still applied in many of the older institutions) was to provide canvas curtains for the porch openings, but there are several objectionable features to this plan. In the first place, the manipulation of these curtains entails considerable work on the part of the attendants and nurses. In the second place, the curtains must be renewed every few years. The third objection, and, in the opinion of some sanatorium superintendents, the most important one, is the annoyance caused to the patients by the flapping of the curtains when a strong breeze is blowing.

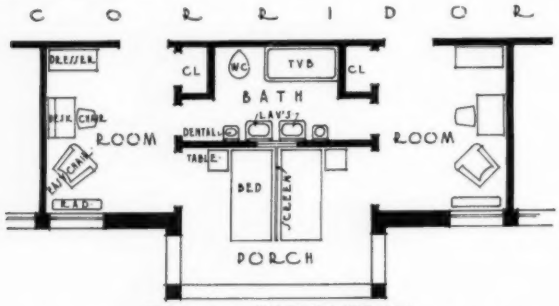


FIG. 4 (C). SUITE, GRADE "B."
Kidner & Rosenfield, Architects and Consultants, New York City.

To meet these objections, a great many sanatorium porches have been enclosed, in recent years, with glass. Various types of windows have been used, but in my opinion the most satisfactory window for a sanatorium porch is one of the awning type, of which there are several excellent examples on the market; the wire screens being placed on the inside. Windows of awning type can be kept open in stormy weather longer than ordinary sliding sashes, or casement-type windows, without subjecting the inmates to a direct draft. An upper row of sashes above a transom should be provided with a device for opening and closing (preferably in series at one time) not under the control of the patients.

Dressing-Gown Cases

Reference was made earlier to the broad classification of sanatorium patients into three groups, but in most sanatoriums, subdivisions of these groups, varying in different institutions, are made.

When an infirmary case recovers somewhat from the acute stage, he (or she) is often allowed to sit up for short periods, and to walk to and from the bathroom. In many institutions, these patients are termed "dressing-gown cases." It has been found very helpful to allow patients who are able to leave their beds to proceed (in dressing gowns) to small, local dining rooms for one or more meals daily. Patients appreciate the break in the monotony thus afforded, the effect on their progress is good, and the labor of tray feeding is reduced.

It is well, therefore, to provide, in a room adjoining the floor serving kitchen, small dining rooms to accommodate from 10 to 20 patients. In a large institution, several such rooms, appropriately located, may be necessary. (See Fig. 3.)

No fixed equipment is required in the dining room, but a serving hatch in the partition between the kitchen and the dining room is a great convenience. Since the patients are in dressing gowns, the sexes should not be mixed in these local dining rooms.

Planning for Semiambulant Cases

Referring once again to the broad classification of sanatorium patients into three groups, it is convenient now to include some remarks on the "flow" or progression of patients through a sanatorium. In good sanatorium practice it is usual to keep all newly admitted patients under observation in bed for a week or two, for diagnosis and classification; the reception and observation section being almost always a part of the infirmary section.

If a patient is acutely ill, he (or she) is placed in a single room. When a patient improves somewhat he is usually removed to a two-bed room. Later, he is assigned to a somewhat larger internal unit (in most modern sanatoriums usually a four-bed ward), and at that stage, as indicated above, is generally able to walk in a dressing gown to a local dining room near the ward and take his meals. If he continues to progress he reaches the stage in which he can put on his outer clothing and walk to the main congregate dining room of the institution to take his meals. He is then classified as a "semiambulant" case, and is transferred to the section provided for patients in that stage of treatment. At first his walks to and from the main dining room may be the limit of his walking exercise, but little by

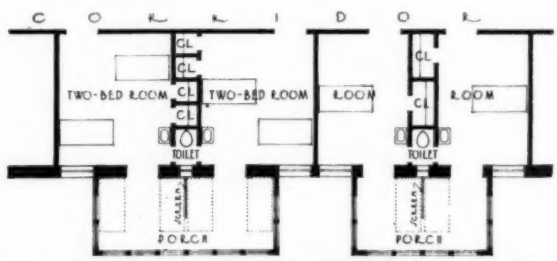


FIG. 5 (A) AND (B). TWO 2-BED ROOMS WITH COMMON PORCH AND TWO SINGLE ROOMS WITH COMMON PORCH.
Kidner & Rosenfield, Architects and Consultants, New York City.

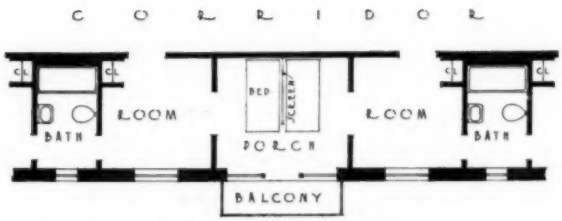


FIG. 5 (C). SHOWING PORCH BETWEEN ROOMS.
Kidner & Rosenfield, Architects and Consultants, New York City.

little this is increased until he becomes an "ambulant" case, and is again transferred to other quarters.

In planning a tuberculosis sanatorium it should therefore be borne in mind that as the virulence of the disease abates, and the patient progresses toward recovery, he also progresses in a physical manner, so to speak, from one part of the sanatorium to another. This is important, for two reasons. In the first place, the accommodation can be progressively simpler as the patient's condition improves, which has a bearing on the cost of the structure and the equipment. In the second place, tuberculosis specialists attach great value from a psychological standpoint to this progression through the several types of quarters, as a patient looks forward to his transfer to another section as an evidence of his progress toward recovery.

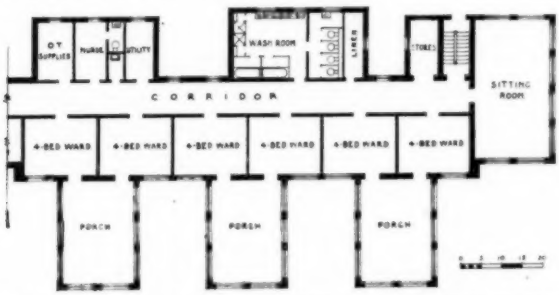


FIG. 5 (D). "CONGREGATE" PORCHES, CAMDEN (NEW JERSEY) COUNTY SANATORIUM.
TYPICAL FLOOR, WEST WING, CENTRAL UNIT.
QUARTERS FOR SEMIAMBULANT PATIENTS.
Arnold H. Moses, Architect; T. B. Kidner, Consultant.

For semiambulant patients, the type of accommodation shown in Figure 3 is very convenient. If a patient has a temporary relapse, he need not be returned to the infirmary section, as he can be wheeled into the room behind the porch for medical attention, bed baths, and for meals in cold weather. (The porch is not heated.)

Several years ago, the writer had the honor of assisting in the development by the federal government of two types of pavilions for semiambulant patients; one for cold climates and one for warm climates. Floor plans and detailed descriptions of these pavilions are given in "Reprint No. 667, U. S. Public Health Reports." In each type, provision is made for an overflow of patients from the infirmary or "hospital" section of the sanatorium. In the pavilion for cold climates, the "porch-room" type of accommodation is used. The patients' rooms are enclosed with windows, and a heated corridor, with individual dressing cubicles, is provided in the rear. More plumbing fixtures are required for semiambulant and ambulant cases than are required for infirmary cases. (For actual numbers, see "Reprint No. 667," referred to above.)

Planning for Ambulant Cases

Reference has already been made to the fact that, as a patient's condition improves, the accommodation provided can be progressively more simple in type. When a patient reaches the ambulant stage, less medical attention and nursing care are required, but the necessity for a strict regimen is increased. Quarters for ambulant patients should therefore be planned to provide for continual supervision of a patient's daily activities, with a minimum of trouble and personnel.

One of the most satisfactory types of accommodation ever devised for ambulant patients was the "cottage-congregate" pavilion developed by the U. S. Public Health Service. The plan and description of this pavilion are given in "Reprint No. 667," referred to above. In effect, the pavilion consists of six 4-bed cottages, jointed together; each 4-bed section consisting of two warm dressing rooms, large enough to permit of the beds being wheeled in from the porch, and a 4-bed porch. The water sections and service rooms are in an extension on the rear of the building. A day, or sitting room, is provided on the front side of the building in the center.

Figure 6 shows an excellent type of accommodation for ambulant cases, first used, I believe, in the Mt. McGregor Sanatorium, near Saratoga Lake, N. Y., maintained by the Metropolitan Life Insurance Company. The plan shown in the illustration was developed by the Construction Division of the U. S. Veterans' Bureau.

The rear corridor type of pavilion, shown on page 8-8 of "Reprint No. 667," is also very suitable for ambulant cases.

Auxiliary and Service Rooms

The auxiliary and service rooms necessary for the infirmary section of a modern tuberculosis sanatorium differ scarcely at all from such rooms as are provided in a general hospital, and very little description need be given. Utility rooms, serving kitchens and patients' water sections should, of course, be located so as to minimize the walking of nurses, attendants, and patients. The desirability of locating local dining rooms next to the serving kitchen has already been indicated.

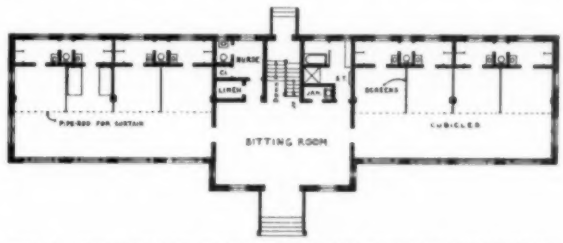


FIG. 6. FIRST FLOOR PLAN, VETERANS' BUREAU SANATORIA.
TYPICAL ARRANGEMENT FOR AMBULANT PATIENTS' QUARTERS.
U. S. Veterans' Bureau Construction Division, T. B. Kidner, Consultant.

It is not advisable in a sanatorium to arrange the opening to the linen chute in a corridor. Even in the infirmary section, a considerable proportion of patients are able to get out of bed, and if the opening to the linen chute is in the corridor, other things than soiled linen are sometimes put into the chute by patients. It is well, therefore, to locate the opening to the linen chute in the utility room, or in the janitor's closet.

The question of nurses' offices, versus corridor stations, often comes up, but in my opinion an office for a nurse should be provided on each floor of a sanatorium infirmary building, even where a corridor station is provided. A nurses' call system is, of course, necessary.

Day or sitting rooms should be provided on each floor. Where men and women patients occupy the same floor, two sitting rooms are necessary. A doctor's office should also be provided on each floor, except on floors where all the patients are in single rooms, as it is very difficult to make satisfactory chest examinations elsewhere than in a quiet room.

For dressing-gown, semiambulant, and ambulant cases, sputum technic stations should be provided; preferably in the patients' water sections. In most sanatoriums today, individual paper sputum cups in a metal container are used by all but bedfast cases, and a sputum technic station is merely a place where the used paper cups can be taken out and clean refills substituted in a convenient and sanitary way. A shelf of glass or slate on which to rest the metal container; a paper-lined can, with some sawdust in the bottom, to receive the used paper cup; and a supply of refills on a small shelf, will be sufficient.

Medical and General Administration

Long experience has demonstrated that the offices and rooms for medical and general administration in a tuberculosis sanatorium should form, with the infirmary, the central unit of the institution. Bed cases can be conveyed to the diagnostic and treatment rooms on ward carriages, and walking patients can come from other buildings or sections. In this connection, it is important that patients from other parts of the institution, coming to the central unit for diagnosis or treatment, should not be required to enter a patients' corridor in the infirmary section.

a) *Medical Administration.* The following rooms should be provided for medical administration: An office for the medical superintendent; examination rooms (one for each sex for each fifty patients); eye, ear, nose, and throat examination and treatment rooms ("head room"); X-ray suite; dental rooms; simple operating room (for minor surgical procedures); laboratory (north light required); pharmacy; open decks for sun treatment; two rooms for artificial light treatment; conference room and medical library.

b) *General Administration offices.* These should include general business office; office for superintendent; waiting room for visitors (entrance hall); toilets for visitors (each sex).

Conclusion

The modern tuberculosis sanatorium is a *hospital,* not a boarding house. For infirmary cases, *hospital* accommodation of modern type is required; plus provision for sleeping and resting in the open air.

Buildings for infirmary cases should be fireproof; the rest of the buildings of fire-resisting type of construction.

As the patient's condition improves, the accommodation can be progressively simpler; always remembering, though, that the proportion of cases requiring infirmary care fluctuates, and is increasing.

Comfort and privacy, with provision for modern methods of care and treatment, are the outstanding features of sanatorium planning today. As in other types of hospitals, however, great attention must be given to economical planning, particularly with regard to economy in administration and operation.

The Library and the Modern Hospital[1]

Richard Olding Beard, M.D., Professor Emeritus, University of Minnesota; Executive Secretary, Hennepin County Public Health Association

THE present generation magnifies great achievement and despises the day of small things. And yet most momentous things begin in a small way. The scriptural philosophy, which penetrates so deeply the profound of human thought, defines the discoverers of these "small things" as "the eyes of the Lord which run to and fro through the whole earth." Strange is it that these small things have so often to be discovered and rediscovered, over and over again, before they begin to loom large in the appreciation of the intelligent observer.

In the dairy districts of England, milkers had discovered that cowpox serum protected them from smallpox long before Jenner established the principle of vaccination. Charles Finlay, of Havana, held a mosquito to be the carrier of yellow fever 20 years prior to the tragic demonstration by Reed and Lazear and 30 years before Gorgas cleaned up the Panama Canal Zone and the Island of Cuba. Moser, Gabritschewsky, and several others, had identified the streptococcus hemolyticus in the throats of scarlet fever patients a quarter of a century before the Doctors Dick proved its causation of the disease by the laws of Koch.

Men have labored long and painfully over the problem of mental and physical interactions—over the psychology of health and disease—but it has been reserved for recent days to develop the practical applications of

[1]Read at the Convention of the American Hospital Association, Minneapolis, Minn., Oct. 10-14, 1927.

mental hygiene and child guidance, to discover the values of suggestion and, among them, to recognize the therapeutic influence of reading—the remedial service of the library in the modern hospital.

Yet the library in the hospital is not so new a conception after all. It began in little things. The hospital-library idea originated, 85 years ago, with Dr. John C. Warren, one of the founders of the Massachusetts General Hospital, who provided a fund "for the purchase of religious and moral books" to be given to patients leaving the hospital. So many good things have had their birth and their beginning in the Massachusetts General Hospital.

Doubtless, Dr. Warren did not know how good a thing he was doing. He did not see beyond the immediate purpose he had so carefully and so narrowly defined. For 40 years, these "religious and moral books" continued to go to those who were discharged from the hospital. Perhaps they would have done more good to those who were destined never to go home. Nevertheless, his novel conception of that day had in it the germ of growth. In 1880, the Warren family consented to the use of the books by patients *within the hospital*. Gradually the collection grew in range and size, until, to quote the words of Miss Elizabeth W. Reed, who has had charge of the library, it has grown into a collection of nearly 4,000 volumes, chiefly of fiction, travel, biography, poetry, and history, including works in sixteen foreign languages and twenty popular magazines. In reality, it has become a part of a larger library of 28,000 books, owned by the institution itself, housed in its own quarters as a distinct department of the hospital, and employing its own full-time librarian.

The Warren Library instituted the first regular book service to bed patients. It became necessary to devise means to carry the books to the wards in greater numbers, and so, the "little book cart," which served as the model for the American Library Association's book wagon used extensively during the war, was designed. This pioneer history has proved inspiring to many who have followed in the footsteps of these early promoters.

The hospital-library movement may be conveniently discussed if it is outlined under the following captions:

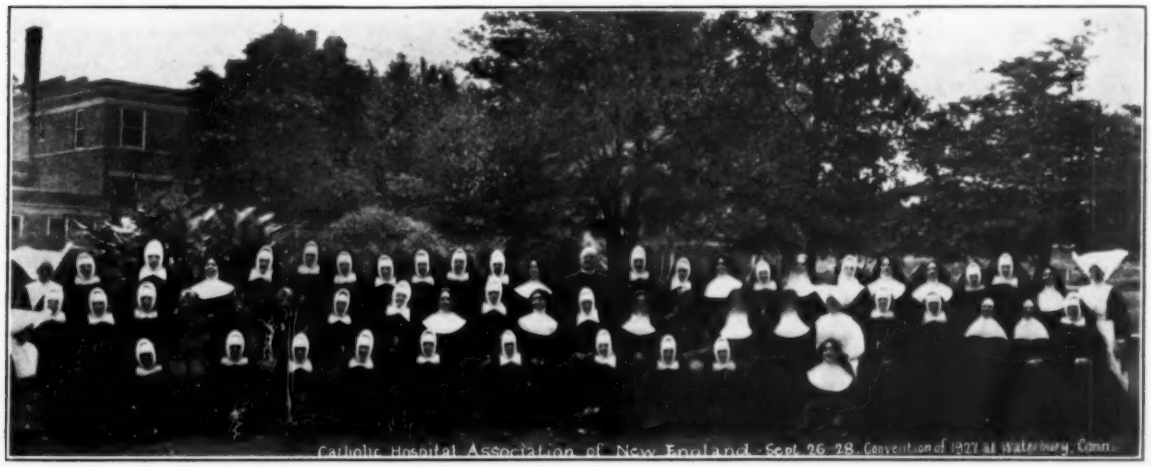
1. **The organization of the hospital library.**
2. **The cooperators in the enterprise.**
3. **The clientele of the hospital library.**
4. **The therapeutic value of reading.**
5. **The educational value of the library service.**

1. The Organization of the Hospital Library

The conduct of a hospital library or a group of hospital libraries is a professional piece of work. It is the function of a specially trained librarian. She is something far more than a mere collector and dispenser of books. Self-trained she may be; school-trained she had better be. She should have a foundation of academic training, along cultural and especially along literary, psychologic, and sociologic lines. She should have a thorough course in hospital organization, method, and administration. All this should be capped by the special study of hygiene, physical and mental, of physiology, and sanitation. She must learn—though this is not so much a matter of instruction as of self-teaching—the therapeutic values of reading; the principles upon which books may be selected for all sorts and conditions of people. She must learn—and this is more a matter of feeling than of pedagogy—how to get along with folks and especially with sick folks; how to lead them; to guide them and yet to allow them the exercise of a choice that she may help to make intelligent.

The public library is the agency to produce such a librarian and under its employ she should remain. In fact, the public library, wherever it exists, should be in partnership with the hospital or hospitals in the exercise of this public service. Its budget should support the librarian. With the trained librarian at the head of a group of hospital libraries, effective service may be expected. In the very large hospital a trained librarian, upon part-time or exclusive employment in its wards, may be essential.

The public library should supply the required books, while it should expect from the hospital something of a *quid pro quo*. The hospital library should be chosen by trained selectors. The mistake of soliciting gifts of books, half-worn and too often long in the dis-



MEETING OF THE NEW ENGLAND CONFERENCE OF THE C. H. A., WATERBURY, CONN., SEPT. 26-28, 1927.

card, is not intelligent. If need be, it were better to solicit funds for the purchase of desirable books. And the public library should be the purchaser of them. In a word, the library should serve the hospital public precisely as it serves every other part of the public, with the superaddition of a librarian especially trained for this particular service.

What, then, is the *quid* which the hospital may supply for the *quo* of the public library? *First:* Let it supply a library and reading room — a sunny, well-aired parlor; not in a basement, closet, or attic. *Second:* Let this room be suitably furnished with bookshelves, protected by glass doors and provided with lock and key; supplied with a library table at which patients may comfortably read; and furnished with three or four straight table chairs and two or three lounging or arm chairs. *Third:* Let it call upon the ladies' auxiliary of the hospital—and every hospital should have one — to provide bright chintz or Japanese print curtains, one or two table scarfs and a pair of green- or yellow-shaded reading lamps. *Fourth:* Let the hospital administrator put a small item in his annual budget to replace books that are worn or dirty—and books that patients or staff lose or forget to return. It is but fair that the hospital should cover its own wear and tear upon its book supply. Fifty, or a hundred, or two hundred dollars a year, according to the hospital's size, will help to give the use of more books and of better books. In its entirety, the library outfit stands for a minor expenditure and a major investment, so far as the hospital is concerned.

THE ANNA C. MAXWELL HALL.
The new residence of the Presbyterian Hospital School for Nurses at the Medical Center, New York City.

Perhaps you object to the tax upon the score that you are a part of the public, served by a public library. Yes, and some gratitude, some return, is due for that service. The library provides you with a hospital librarian, with an initial and renewable supply of books and with an adequate messenger service. Public money, you know, is never easy money. There is seldom enough to go round. It does not go far in buying new books. And books, almost unbelievably, wear out. Let the hospital do its bit!

2. The Cooperators in the Enterprise

Remember that the hospital librarian has to serve two masters, the hospital and the public library. And within the hospital she has to work hand in hand, to fit herself in and to fit into her job, with the business office, with the clinical staff, with the interns and residents, with the nursing force, and with the social-service department—if there is one, as there ought to be. She goes into partnership with them and she has a right to look for their support. She brings them values, which in time they learn to appreciate. It may take the physician, who is characteristically averse to change, who loves the security of the beaten path, a long while to learn the superlative values she will bring to his patients, her smoothing out of difficulties in his course, her remedial influence among them — for which he will commonly get, and sometimes take, all the credit. It needs an Osler to understand the worth of the hospital helpers who hold up his hands in the effort to restore health and economic efficiency to his people. Encourage, then, the service of the library to the hospital. Keep an encouraged heart in the young woman who runs it. She may become one of the doctor's chief supporters. Make her work worth while.

3. The Clientele of the Hospital Library

The hospital librarian has to establish good working relations not only with her coworkers, but with her patients. She has to work with and through them all—from the patients in the wards and rooms to the superintendent in the office. The help she gets and gives should be mutual. She has obligations to them, and they to her. They are, each and all of them—administrator, doctor, houseman, nurse, social worker, and sick—of her clientele. She has a special leverage of influence with them, because she may include every one of them among her beneficiaries. Books, betimes, will be welcome to them all. She has a particularly good work to do in relieving the tedium of hospital routine, in easing the burden of hospital duty for the hospital worker through the recreation of reading. Nevertheless, the patient remains, of course, her first concern, and to be understanding of him, in health, in illness, or in convalescence, her most careful and intelligent study is required.

4. The Therapeutic Value of Books

The highest task of the hospital librarian lies in the expert adjustment of the book, and of the reading of the book, to the patient. Reading is a form of occupational therapy, although the librarian works with her own peculiar technic. She occupies the minds rather than the muscles of her pupils. In fact, she nurses their minds, and in so doing she proves herself an intelligent sister of the nurse.

A woman, convalescent enough to be propped up in bed and to read for a couple of hours, said, as she finally laid down her book: "Well, I had forgotten I was ill!" One cannot forget that one is ill without being better as a result. And her nurse, as well as she, was benefited, rested, by that lapse of the memory of pain and incapacity. These two nursing sisters had held up each other's hands.

Yet, better than the boon of self-forgetfulness that the book confers, beyond the range of its occupational value, the field of the therapeutic influence of reading extends. Few realize how far it may reach. Reading, intelligently directed, is a medicine of the mind. And how profoundly mental and physical function react upon each other, few can yet measure. To appreciate the part that reading may play in the adjustment of mental with physical consciousness, one has only to learn what the library has done to promote the happiness and the self-helpfulness of the psychopathic.

It is the librarian's business, just as definitely as it is the doctor's, to prescribe for her patients. Book selection, for therapeutic ends, is an art which depends not solely, although primarily, upon the knowledge of books. It turns upon the understanding of human nature, in general; upon a knowledge of the conditions by which human nature, in the particular case, is beset. The librarian has to deal with men and women and little children; with the problems of age; with all degrees of acute and chronic disablement, convalescence and recovery; with the characteristics and specific needs of the psychotic, the neurotic, the cardiac, the thyroidic, the dyspeptic, the diabetic, and the like. Her special therapy needs, and is susceptible of adaptation to, each. Its gamut of influence takes the range from help to harm, from food to poison.

There are books that are stimulants—consider their timely urge, their limited sphere of usefulness, their tendency to reaction; there are books that are tonic—value their upbuilding power; books that are sedatives—apply safely their soothing virtue; that are hypnotic—let them rock your patient gently to sleep; that are nutrients—feed them generously; that are purgative, cleaning out the cobwebs of the mind; that are recreative, renewing alike the spirit and the flesh; and there are books that are depressants—beware of them; and books that are poisonous—shun them.

There is need that the librarian be a case-taker. She may build upon the case history written by physician, intern, or nurse—but to it she should add her own. Here is, in fact, and at certain points of gathering her material, a more difficult task. The mental qualities and conditions of her patient have to be carefully observed and reckoned with. She knows that her contribution to the bodily benefit of the patient must be made exclusively through his mind. The variations in the mental capacity of her patients have to be studied more carefully, and nicer adjustments made, than in other fields of therapy.

She must probe quite carefully and cautiously into very closely personal problems:

1. **What is the order of the patient's mental ability?**
2. **What is his mental background?**
3. **What is the measure of his early education?**
4. **What is his previous reading experience?**
5. **What is his present physical condition?**
6. **What is his present mental capacity?**
7. **How does his physical condition react upon his mental state?**
8. **Is he mentally depressed?**
9. **Is he mentally irritable?**
10. **Does he tend to be mentally exalted?**
11. **Is he, by nature, an optimist,—a pessimist?**
12. **Does he need, mentally speaking, milk for babes or food for thought?**
13. **Will he be content with the sensationalism of much of the present-day fictional output?**
14. **Do the columns of the daily press suffice him?**
15. **Does he need a mental stimulus, a tonic, a sedative—something that may put his mind at rest and send him, perhaps after awhile, to sleep?**
16. **Does he simply require a mental aid to self-forgetfulness—an article or a story to arrest his attention, temporarily to absorb his interest, to give him something new to think about?**

The librarian should remember that most adults and many children tend to read above themselves. That reflection may give one cause for either pride or humiliation—but it is worth consideration. Reading tends, not only to occupational benefit, to mental and physical betterment, but also to educational results.

5. The Educational Value of the Library Service

Prevention is better than cure. Health preservation is a higher task than health restoration. Health promotion is a nobler mission still. Education is its minister. The value of reading extends to the welfare of the reader.

It remains, perhaps, the most difficult duty of the hospital librarian to make her books tell upon the future of her patients. To do this effectively is, first of all, to judge of the educational level, the intellectual and spiritual capacity of the reader to be supplied with books. It takes tact, judgment, sometimes keen discernment to gauge his mental make-up. One may follow certain guiding principles, as with Miss Reed, who says that when she sees a negro enter the ward she runs to put a Bible in the bookcart, because in nine cases out of ten he will call for it.

Nevertheless, surface indications, of age, sex, race, occupation, or social status, are not always to be trusted. Surprises await the rash diagnostician of literary taste. To anticipate a request for a sporting magazine, and to be countered with a request for a well-known historical work; to have an old Greek emigré ask you for "The Tragedies of Aeschylus," *in the original;* to discover an elderly lady, of assumed light-reading habits, who devours everything she can get on Abraham Lincoln; to hear a young sailor chap call for Einstein's "Theory of Relativity"; to have a late Scandinavian arrival inquire for the "Norse Eddas"; and a venerable Jew suggest Dostoyevsky or Sienkiewicz, or the author of "Up Stream"—all of these are experiences which serve as an antidote for very much of the demand for the sensational novelism or feminism of the day. Even

the passing point of view, or the love of large words, promoted by current reading, is interesting. Said two ladies, living in the chronic ward, to each other, as they tottered along to the washroom, "Well, how air you today?" "Oh, jist the same." "Well," said the first, "what I want to know is, air you a-gettin' better or air you jist recuperatin'!"

The book tray or book cart of the hospital librarian carries an instructive assortment of books which justifies the faith that here in the wards of the hospital is an opportunity for the patient to return to school for a while, and not only to be refreshed and comforted by what he reads, but to be reawakened and reinspired to a sense of new values in the life that awaits his return to it.

And then, sometimes, the educational tables are turned and at the feet of some sufferer in the wards the hospital librarian has an opportunity to sit, to discover in the hidden mind of him a place from which unsuspected wealth may be drawn—a teaching power within him that may serve and feed her own need. That experience comes to all of us once in a while—and often unexpectedly. It came to me not long ago. To meet a mortally sick man who served as the head gardener at a friend's beautifully gardened home, is not, perhaps an unusual event; but to find in him a horticulturist of experience and training, a man of literary taste traceable back through nine centuries of family heritage; a philosopher of modern-day thought; and, finally, to discover, almost at his death, a poetic genius of insight and power, whose work one may well cherish for its rare beauty, is sufficiently remarkable. It serves to tell us just this—that among the wastage and the salvage of our hospital life we may find intellectual and spiritual values which minister to us and to which we may generously minister.

Sidelights on the Powers of Sunlight

Bernard Langden Wyatt, M.D., President, Board of Directors, The Desert Sanatorium of Southern Arizona, Inc., Tucson, Ariz.

"WE are only at the beginning of the conscious utilization of the powers of sunlight as distinct from the unconscious enjoyment of them."—*Sheppard.*

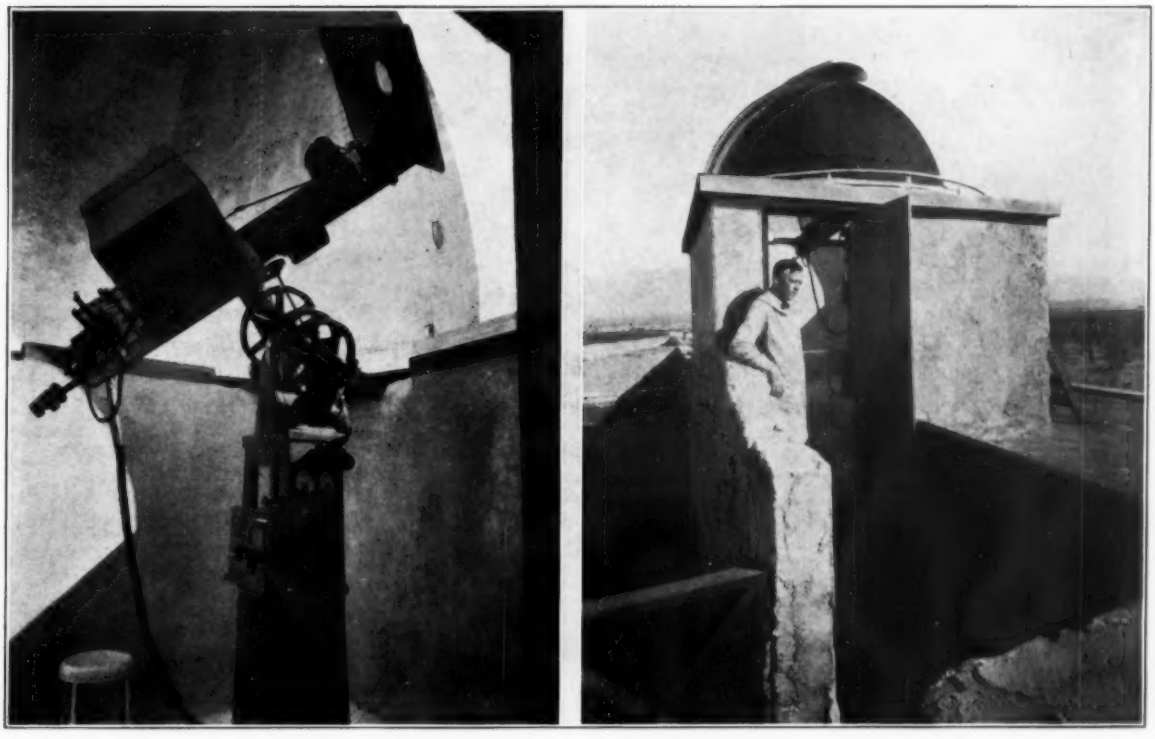
Sunlight comes to us from a distance of approximately 93,000,000 miles. Just how the light from the sun is transmitted over this long route is not apparently understood even today. There are, as a matter of fact, two theories of light transmission, but as long as we know that sunlight gets here and covers the 93,000,000 miles of distance in about eight minutes, we need not burden ourselves with a consideration of the scientific explanation as to how it does it.

Not only do rays of light come to us from the sun but also there are other waves, all of which are of electromagnetic origin. Wireless waves, heat waves, light waves, and ultra-violet rays are of identically the same nature, the only difference being in the frequency with which one wave follows its predecessor. The ultra-violet rays of the sun have the same speed as visible light waves, that is to say, they travel at the rate of more than 186,000 miles in one second.

In the early days, when gods and goddesses were supposed to rule over the destinies of mankind, there were sun gods who were believed to dispense sickness and death as well as life and health. In modern times sun gods have lost their hold upon the imagination but the utilization of the amazing powers of sunlight constitutes one of the most important and fascinating studies in the field of medicine.

Just as in the domain of sound there are certain notes of too high or too low a pitch to be perceptible to the ear, so in the domain of light there are vibrations which the eye cannot see. In the year 1800 the astronomer and physicist, Herschel, while repeating Newton's experiments of dissociating the seven primary colors of which light is composed (by passing a beam of light

THE DESERT SANATORIUM, TUCSON, ARIZ.



ULTRA-VIOLET OBSERVATORY, DESERT SANATORIUM, TUCSON, ARIZ.

through a prism), discovered that beyond the red, where the eye can perceive nothing, the mercury in a thermometer would rise. It was, therefore, apparent that in this region movements existed which had the property of raising the temperature of objects placed in their path and for this reason Herschel called them heat waves. Subsequently, because of their situation below the red, the name of infra-red rays was applied.

At almost the same time that Herschel made this discovery, Ritter and Wallaston showed that in the region beyond the violet were rays capable of producing chemical changes. These constitute the ultra-violet region of the spectrum and, together with the infra-red rays, make up a portion of what is called the invisible spectrum.

Although the bactericidal action of ultra-violet radiations was discovered as early as 1877 by Downes and Blunt, it has been only during the past decade that physicians and scientists have come to appreciate their significance in relation to the biologic processes of man. In fact, as Hess has pointed out, it was not until it could be shown objectively by means of the roentgen ray and chemical analysis of the blood that a nutritional disease—rickets—came about as the result of a lack of the ultra-violet solar rays and could, in turn, regularly be prevented or cured by these irradiations, that their importance in medicine became apparent.

Our knowledge of the manner in which sunlight produces its effects on the human body is still most fragmentary and incomplete, and it must not be assumed that the physiological action of sunlight is entirely a matter of reaction to ultra-violet rays. Both animal and vegetable cells are influenced by radiations of different wave lengths and the possibility that the solar spectrum, considered as a whole, may have properties of great value in the treatment of disease must not be overlooked. Much of the present confusion relative to the value of solar radiations in the prevention and treatment of disease has resulted from the empirical manner in which they have been applied and the lack of satisfactory apparatus for measuring the intensity of different regions of the solar spectrum. Consequently, an instrument which should play an important role in heliotherapy is the Ultra-Violet Solar Radiometer which has been invented by Professor Edison Pettit of the Mount Wilson Solar Observatory near Pasadena.

A technical description of this instrument has been published in a number of scientific journals and it is difficult to describe it in simple language. Briefly, the apparatus consists of two lenses of quartz set into air-tight cells and fitted to a telescope mounting. One of the lenses is silvered and permits the passage of ultra-violet radiations only, while the other lens is gilded and transmits radiations at the green line of the solar spectrum. The telescope mounting is pointed at the sun early in the morning and, by means of a driving clock, follows the sun throughout the day while a photographic record of the ultra-violet light at the extreme end of the solar spectrum and the green light at the maximum of solar energy is made automatically every minute.

It is not within the scope of this series of articles to describe recent experimental studies concerning the activation of vegetable oils, leafy vegetables, and other foods by means of ultra-violet radiations but in a sub-

sequent paper the indications for heliotherapy and the principles to be followed in the clinical application of solar radiations will be considered. Mention should be made here, however, of Goodman's subdivision of the ultra-violet region of the solar spectrum which makes it possible for results of treatment to be more readily translated into terms of physiologic reactions. Goodman classifies the ultra-violet as *intravital* ultra-violet (from 3,900 to 3,200 A.u.), representing the ultra-violet which passes through ordinary glass; *vital* ultra-violet (from 3,200 to 2,900 A.u.), which is the ultra-violet present near noon in the summer sunlight and does not pass through ordinary glass; and *extravital* ultra-violet (below 2,900 to the limit of the penetrability of air at about 2,000 A.u.).

Vital ultra-violet is the zone in sunlight which is necessary for the normal growth of babies. It is the zone which produces tanning and sunburn. It is the zone which affects the calcium metabolism of pregnant women; and it has at least one of the lines which acts on the precursor of the antirachitic vitamin present in otherwise nonactive substances.

We are indeed only at the beginning of the scientific application of the powers of sunlight in the treatment of human ills and the qualitative and quantitative action of solar radiations forms the basis of many physiologic reactions which are both fundamental and vital. The scope of the problems involved is all-embracing and should interest everyone who is concerned with the progress of mankind.

History of Work in Germany for the Weak-Minded

Rev. P. Michael Fischer, O.S.C., Secretary of the German Catholic Hospital Association, Freiburg in Breisgau, Baden, Germany

(Written and Translated for HOSPITAL PROGRESS)

THERE never has been a time in human history, when there were not some persons with such bodily infirmities that they were dependent on aid, not merely from their immediate families, but also from public authorities. Similarly, there have always been people with mental defects of many varieties. The clergy have numerous occasions of meeting with every class of mental inferiority, from idiocy to slight psychopathies, in which it is often difficult to draw the line between health and disease. It is a strange fact, however, that the general public has never shown much interest in the mentally sick. Not until modern times have these found a measure of comprehending sympathy and care worthy of human beings.

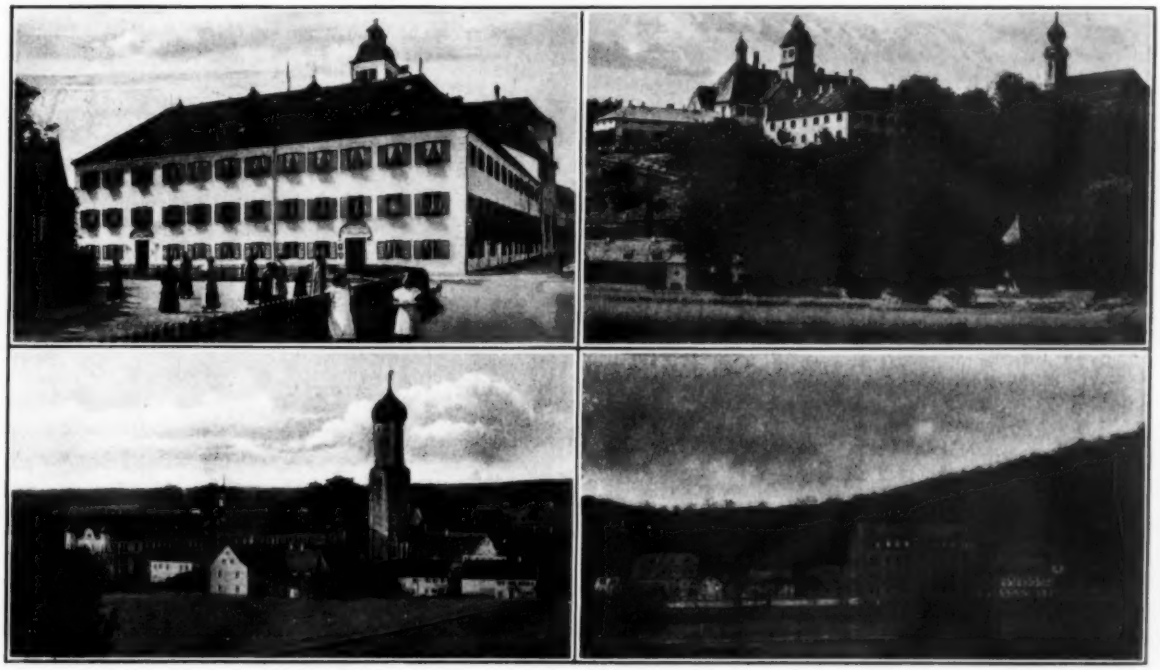
Whenever we speak of the mentally sick, the soul is never included. All human souls, no matter whether they dwell in the misshapen form of a poor cretin or are inclosed in the body of some great scholar, are, taken by themselves, of the same kind. The soul is a spirit, and is the real principle of life and the joint cause of all living functions. It cannot become ill, nor suffer from infirmities. The bodily organs, however, which are made use of by the soul to enable it to influence the outer world, and especially the brain and nerves, may be sick. Science has from the beginning felt it a particularly attractive task to discover the delicate interaction of body upon soul, and again of soul upon body; a great deal of scientific knowledge has been acquired in this strange field; yet there is much, very much, still hidden in the depths, waiting to be brought to light. It would be an interesting task to present to the reader the latest research and its results, which medical science has gathered especially during the last twenty years, regarding idiocy, epilepsy, cretinism, and the like; but that I must leave to the expert. Lately, science has got to the point of claiming that 70 per cent of all persons are not normal, mentally. Well, that may be an exaggeration; for otherwise, how could there be so many clever people?

The Beginnings of Care for Defectives

The origins of welfare work for the weak-minded cannot be traced with certainty. It is fair to presume that data purporting to go beyond the Middle Ages must be set down as legendary. Thus, there is a fund belonging to the ancient Benedictine monastery of Admont, Steiermark, for the benefit of twelve cretins. According to tradition, this trust was established at the time when the monastery was founded, by Archbishop Gerhard of Salzburg. The legend says that a deaf-mute cretin showed to the founder a good place to build the monastery—the very place on which the abbey was built in the year 1074. Stories of this kind are found frequently in old chronicles and other writings, but do not deserve credence on account of the improbabilities involved.

During the later Middle Ages, we find more trustworthy accounts. The age was one of profound faith and strong, self-sacrificing activity in charitable fields. It is from that time that not only our wonderful cathedrals and monastic buildings are dated, but also the numerous hospitals, which, in all parts of the Fatherland, testify to the charitable zeal of the Catholic past that may well be a model for our own time to follow. Yet, little or nothing was done, during the Middle Ages or for some time thereafter, on behalf of idiots and imbeciles. People had a confirmed prejudice, according to which idiotic or imbecile children were beyond cure, and consequently not entitled to special care. Wherever special custody was given to them, it was with a view of keeping them from becoming a menace to the community.

Moreover, there was the superstition, so widely spread throughout the Middle Ages, which went to its worst excesses in belief in witches, devils, and evil



EAST VIEW OF HOSPITAL AT ECKSBERG.
THE ST. JOSEPH'S COMMUNITY AT URSBERG.

INSTITUTE FOR FEEBLE-MINDED AND EPILEPTICS, ECKSBERG.
HEART OF JESUS HOSPITAL, AT KUHR, NEAR LEHMEN, ON THE MOSELLE.

spirits. The possibility of human beings entering into pacts with the Devil in order to injure their fellow men seemed so self-evident, and belief in it was so deeply rooted, that it took centuries to eradicate it from broad strata of society. It was quite in line with mediaeval ideas to assume that idiots and imbeciles were products of the Evil Spirit. Changelings also, which are often mentioned in ancient writings, and were supposed to be substituted for the true children of mothers by Robolds and bad fairies, were nothing but what we now call cretins or idiots. Horrible tales of this kind were circulated and believed, not only by the common people, but also by the educated, and even by scholars of that time.

Superstitions of a Past Day

There was, also, however, during the Middle Ages, a tendency to marvel at and even reverence anything that was out of the ordinary. Accordingly, idiots were not rarely considered as persons of supernatural origin, and respected as such, to a certain degree. As late as the year 1769, the French traveler, Paav, writes as follows in an account of a research trip in the Canton of Vallais, Switzerland: "The inhabitants consider these cretins as guardian angels and saints. They are never crossed, receive the most careful nursing, and everything is done to entertain them and satisfy their desires. Children do not dare to make fun of them, and adults show them respect." Possibly this idea is at the bottom of the notion, maintained by some present-day scholars, that the term "cretin" is derived from the French word "Chretien," meaning Christian. They are designated thereby as true Christians, because, on account of their mental condition, they were unable to commit a sin. As long as these imbeciles did not cause public disturbances, they were left to do as they pleased.

But it was quite otherwise when they became a menace to their surroundings. Then, the brutality and callous indifference of those rough days became manifest. If they showed ferocity or became maniacal, they were almost invariably thrown into prison and kept in irons. In old city records of Nuremberg and Frankfort we find that particularly dangerous idiots were put in chains; it even happened that they had to stay in the same place for five, even seven, years. Considering that these prisons were mostly subterranean dungeons, without light or ventilation, and taking into account the lack of cleanliness of the patients and the defective removal of dirt and excrements, we can picture to ourselves the terrible fate of these miserable creatures.

Quite commonly, excited patients were quieted by blows. Thus it is recorded that at Nuremberg, in 1377, an imbecile was whipped by the hangman's assistant. In 1434, a reward of seven silver shillings was paid for whipping an imbecile man and an imbecile woman. Conditions like these lasted during many centuries. When, during the eighteenth century so-called workhouses and houses of correction were established for all sorts of vagrants and good-for-nothings, these were utilized also to dispose of dangerous mental cases. Harsh treatment, overwork, and the brutality of the keepers caused the mortality among the inmates to assume startling proportions. The houses of correction at Torgau and Breslau seem to have had, about 1770, a particularly bad reputation.

Cruel Methods of Cure

The notion that imbecile and insane persons were possessed of the Devil—a belief which, at Basel, for

instance, was still universal in the fourteenth century—led to all sorts of cruel tortures, intended to drive out the Evil Spirit. We read frequently, for instance, that patients were drawn high up on a framework and then suddenly ducked into a basin of ice-cold water. Or, they were ducked by means of an apparatus resembling a water wheel, where each turn would throw the patient's head forward into the water. This was continued until no further sound came from the victim.

Similar methods, meant, as they undoubtedly were, for the good of the patient, were sometimes applied even in the supposedly enlightened nineteenth century. As late as the year 1807, Horn, second principal physician at the Royal Hospital ("Charité") at Berlin, reported that he had found a new remedy for maniacs. He had them strapped upon a board which was then swung around in a circle with very great velocity. He adds that the effect of this method had in many cases been very beneficial. Raving patients had been subdued thereby, violent and excited ones had been rendered obedient and orderly, lazy and indolent ones alert and industrious.

A heathenish manner of looking at life might easily lead to the idea that the stupid ones are in the world that clever people may have sport with them. It is not surprising, therefore, that idiots and imbeciles have often been the butt of coarse jests. We may be sure that among the court fools of former days, there were many cretins and imbeciles whose silly and awkward behavior helped to while away the time for their betters. They even became objects of business speculation. Ancient records show that exhibitors at fairs would procure idiots and deformed persons. The worse the deformity and the more repulsive the features of these poor creatures, the greater the crowd seeking admission, and the richer the harvest for the exhibitor. If the unaccustomed sight of so many people, their noise, their laughter and teasing, got the victim even more excited and ferocious, the pleasure of the mob was increased accordingly. That time is not so very remote. Even a hundred years ago, during the time that loved to call itself the Age of Enlightenment, one could see enterprising "business men" of this sort travel to the annual fair at Berlin, with their cages filled with human beings.

First Mention of Madhouses

"Madhouses" are first heard of in the thirteenth century. Hospitals were established at an early date even in very small towns. However, insane patients were seldom received in the hospitals, and even where they were taken in, their treatment in these two classes of institutions was not particularly commendable. As to idiots, they ever remained the stepchildren of society, left to their own fate, just as far as practicable.

At an early date, physicians and investigators of great reputation drew attention to the connection between bodily and mental conditions in the case of insanity; they also noticed that certain mental defects occurred with unusual frequency in particular localities. Thus the renowned Paracelsus speaks of the goiter of cretins in this way: "Persons with goiters are rarely bright, because their brain, which for moisture and nourishment needs minerals, receives these in an undigested and unripe state, thereby destroying the memory; moreover, they are deaf, because the mineralized humors close the ears, but do not affect tongue, nose, and eyes."

About the end of the eighteenth century, the Geneva naturalist, Horace DeSaussure, made a journey through the more remote valleys of the Alps, and encountered a village in which a large number of cretins were living. In his "Travels in the Alps" he describes his experience in these words: "All rational creatures had left the village to work in the fields, and none remained but imbeciles, or at least nobody else was seen on the streets. At that time I was not yet familiar with the external signs of the malady of cretinism. I addressed the first one I met to discover the name of the place. When he did not answer, I asked a second, and a third. Profound silence, or a few inarticulate sounds, was the only answer. The stupid wonder with which they stared at me; their immense goiters, their thick lips, half opened; the heavy and thickened eyelids; their jaws hanging down like those of horses; their brown skin: all this affected me with horror. One might imagine that some evil spirit had turned the inhabitants of this unfortunate village into brute beasts, leaving them so much only of human form as would indicate that they once had been men. I left the place in a sort of melancholy terror which will ever remain in my memory."

Systematic Welfare Work

Since DeSaussure published his experiences, numerous people have not ceased to attempt to find a way to aid these poor creatures. From that time, date the beginnings of systematic welfare work for idiots, as we know it today in more developed forms.

The first one to devote himself to a methodical treatment of imbeciles and idiots was Guggenmoos, a teacher by profession, who in 1816 founded a small educational institution for weak-minded children in the neighborhood of Salzburg. However, interest in this work had not yet been sufficiently aroused to insure the financial basis of such an undertaking. After twenty years, the work of Guggenmoos' institution had to be suspended.

More attention was attracted to an establishment founded by Dr. Guppenbuehl, on the Abendberg Mountain near Interlaken, Switzerland. When, one day, he saw a cretin praying before a wayside shrine, the idea struck him that it might be possible to educate these people to a certain extent. "When I ran through the voluminous literature relative to cretinism, up to 1840," he writes, "and became convinced that not a single human being had been reclaimed or improved thereby in any practical respect, I realized that scientific research was but one factor, but the other and more important factor in the work was personal devotion and charity." In 1842, an institute for 50 children was

opened. The founder laid particular stress on rational and efficient physical culture; but this was accompanied by instruction, reading, and writing. His rather high hopes were not entirely realized. When the practical results fell behind the anticipations, the enthusiasm which he had met in his first endeavors turned into hostility and opposition.

The reason why the first attempts at work for imbeciles are found in the mountainous parts of Switzerland and the Tyrol, is that the disease of cretinism is more frequent there than elsewhere. It seems that as early as 1811 a census taken by order of Napoleon I in Switzerland showed over 3,000 cretins in the single canton of Vallais. To this day, by far the greater number of these people are found in the Alpine countries.

In Germany, governments and local authorities were totally indifferent to welfare work for the weak-minded. The earliest suggestions and active measures originated among religious people, and especially the clergy.

First Home for Weak-Minded

The claim of being the first institution of this kind belongs to one founded, in 1846, at Hubertusburg, Saxony, by Dr. Ettmueller. In Wuerttenberg, Dr. Mueller of Tuebingen started a home for the weak-minded, at Ried in the district of Veihingen. This was later removed to Stetten, near Cunstedt. On the part of Catholics, Rev. Father Probst organized the institution at Ecksberg, Bavaria, the first Catholic one, which is still in existence. In April, 1852, he moved into a ramshackle house, formerly occupied by the sexton of the parish, in that little village in Upper Bavaria. He had with him seven children, and precisely one guilder in cash. Until his death, he remained the head of the institution. After some twenty years, he published a pamphlet for the world's fair at Vienna, on his experiences in this work. It begins with the sentence: "An

FEEBLE-MINDED PATIENT WITH CRIPPLED HANDS OPERATING A SAW WITH HIS FEET.

TEACHING DEAF-MUTES TO ARTICULATE —URSBERG.

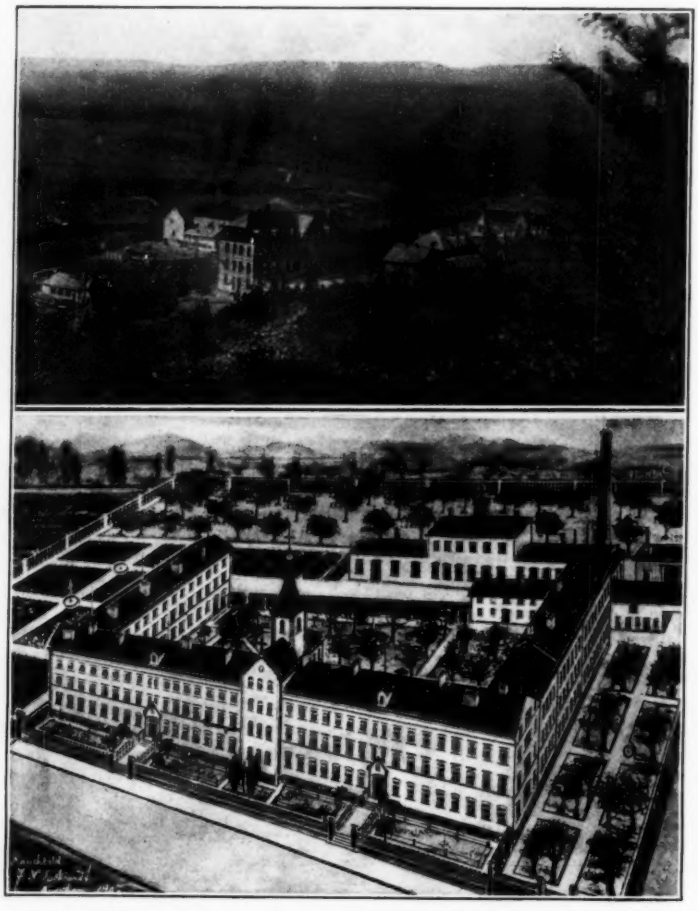
A PATIENT JUST ARRIVED—URSBERG.

AT URSBERG: SISTER NURSES AT FARMWORK WITH FEEBLE-MINDED.

FEEBLE-MINDED CHILDREN IN CARE OF SISTER NURSES AT URSBERG.

institution for imbeciles can flourish only in a soil of Christian charity and self-devotion."

Since Ecksberg was founded, a zealous rivalry has sprung up between the two great denominations of the Fatherland, in the field of care for the weak-minded. All the institutions opened during the years to follow cannot be enumerated here. In the year 1853, there were already eight institutions, with 265 inmates; one of them, that at Ecksberg, was Catholic. State and municipal authorities, however, were reluctant to aid. Thus it came about that nearly all these institutions had to call on private charity for support, without aid from public funds. They have not been hurt by this; they were thus spared the infliction of that stiff, bureaucratic spirit which is always an obstacle to all far-sighted vision. In some cases, one might apply to it the reverse of Goethe's words: "It always aims at the good, and always produces evil." Finally, however, by the act of July 11, 1891, the associated commissions for the poor, in each state, were obliged to see that all the indigent, the weak-minded, and epileptics were provided for in some proper institutions. This assured, to some extent, the financing of the various private institutions.



ABOVE: ST. VINCENT FOUNDATION, ASSMAUNSCHAUSEN.
BELOW: HOSPITAL AT STRAUBURG.

A Scientific Approach

Weak-minded persons could not be properly taken care of and trained, unless provision was made to train expert nurses. Skillful teachers, also, do not grow spontaneously, especially in the difficult field of teaching imbeciles. A central organization, the Conference for the Treatment and Custody of Imbeciles, founded by Pastor Sengelmann, has taken charge of this need. By establishing appropriate study courses it has created and developed an appropriate technic. In 1898 this organization, in which Catholic institutions are also represented, changed its name to "Conference for the Custody of Idiots and Schools for Weak-Minded Children." While the name was changed, the aims and objects remained the same.

As happens often in the course of human events, our work for the weak-minded went through a critical experience: During several decades, the private charitable institutions, by unaided efforts, carried on the work and demonstrated to the world that something useful can be made even of imbeciles. Then, governments and municipalities came along, established special classes in schools for so-called "dummies," and thus drew away from the charitable institutions a large proportion of those pupils who were comparatively easy to educate. The consequence was, that the private institutions were in danger of becoming mere custodial homes. Perhaps the institutions themselves contributed to some extent to this development, by being too backward in providing for the training of a body of special teachers, so that they might meet this competition. Of late, the financial difficulties, both of the government and the cities, have abated this danger, but it will return sooner or later. The ultimate aim of a home for imbeciles is not simply to house and feed the weak-minded, whom the rough world shoves aside, but to lift him out of the morass of mental abandonment, to awaken what capacities there are in him, and to give him self-confidence. That such a thing is possible has long been admitted by experienced educators. Nearly all the weak-minded of the so-called high and medium grades are teachable. That is shown by statistics. Four years ago, it appeared that of 20,000 idiots, imbeciles, and epileptics in our institutions, 8,600, or 43 per cent, were usefully occupied in some way or other.

Special classes, in which teaching proceeds principally by object lessons, usually have a course of six years. For high-grade imbeciles, there are sometimes "assistance courses" (Foerderklassen), which are intermediate between the regular school and the special classes. Another step forward is the establishment of special continuation classes, which are, of course, very different from the regular continuation schools. Con-

scientious and accurate advice regarding the choice of an occupation is indispensable in this work; but efficient training will always remain the principal factor. It is generally estimated that the number of children in Germany, who are imbecile, or not very much above that mental condition, amounts to about a million.

Any nation, especially in times like the present, has a very considerable interest in the question whether a million human beings are to be self-supporting or not. For this reason, a movement has lately grown up to make the municipalities, or specially organized larger districts, responsible for appropriate measures with the ultimate purpose of enabling even the least educable of this army of mentally defective persons to do some trifling productive labor, so that they may at least in part support themselves. Moreover, the further growth of the number of imbeciles is to be prevented by all proper means.

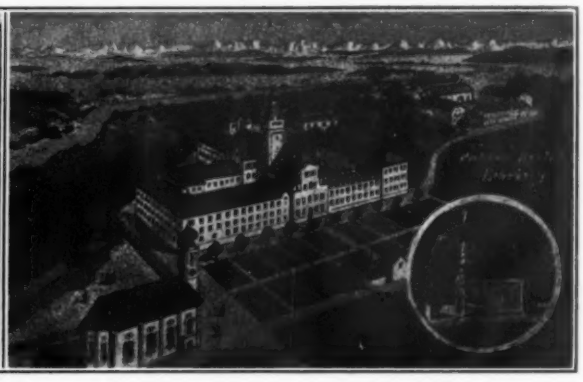
A Bright Spot in a Dark Picture

We add a few more statistics. In 1920, there were in German territory altogether 286 institutions for mental defectives and epileptics. The number of inmates was 54,404. Of these institutions, 196 were private charitable trusts, the rest were supported by the state or by municipalities. We now have 46 out-and-out Catholic institutions, with a total of 14,570 beds. In these establishments, the nursing personnel is composed entirely of members of monastic orders, except that in two houses in Bavaria (Ecksberg and Schoenbrunn) there are female nurses belonging to the Tertiary Order of St. Francis. The personnel of the institutions is composed of 1,763 Sisters and 353 Brothers, a total of 2,116. In 31 institutions, there are special classes, with expert instructors, and properly divided classes. The others have at least specially arranged workshops. We may say, therefore, that we have not lagged behind, and may rejoice in our success.

The bright spot in work for the weak-minded is training for self-support, yet there remains the great mass of those who either have never attained any degree of mental activity in all their lives, or have stopped at a stage of development so low that normal man is almost reluctant to concede that they are of the same species as himself. For these, custodial care is required; these pitiable creatures lack all basis for hope of ever becoming able to survive in an open competition for life. Within the last few years, some people have begun to talk about the destruction of valueless lives, meaning thereby that it is not worth while to keep these unfortunates alive by such tremendous sacrifices. We need not discuss the problem of "euthanasia" (painless death), because for us Catholics it solves itself: Let society learn to combat the causes, not the consequences. Christian charity discovers in every abnormal human being a problem to be solved, not to be extinguished. Who will say, that some poor imbecile or unteachable child may not, ultimately, be assigned to a greater part in the history of the world than himself? Anybody visiting an imbecile asylum may well be astonished at the loving care with which precisely the most miserable of the pupils are treated. Does it pay, this devoted care?

A school inspector discovered that, in some school he visited officially, the first place had been given to a weak-minded pupil, who never gave any but very unsatisfactory answers. Asked for the reason, the teacher said: "That is a rare guest, whom we must honor above others. I'll be able to make something of him, for I certainly feel great pity for him." Not long after, this teacher died. When the pupil was told about this, he first stared at the speaker a while, then said: "He was a good man, for he always looked at one so pleasantly." That was all the poor imbecile knew to say in order to express his gratitude. Sympathy with the afflicted, and above all else the recollection that even in the weakest and most incapable there dwells an immortal human soul, these two elements aid in solving the question whether such care is worth while or not. It is surely worth while. It is worth while, even where the capacity of the recipient of such love does not suffice to frame so much as the grateful answer: "He has always looked at one so pleasantly."

BIRDSEYE VIEW OF HOSPITAL AND SANITARIUM AT BRANITZ.



BIRDSEYE VIEW OF KRETINEN INSTITUTE AT ECKSBERG.

Special Features of Eye Nursing[1]

Edward Jackson, M.D., Denver, Colo.

THE general principles and purposes of ophthalmic nursing are the same as for nursing in general. But they have to be applied to an organ that differs from all other parts of the body, and are intended to achieve results that are not aimed at in the care of other parts. So this branch of nursing care has special characters, that are not learned in general nursing; but cannot be neglected when dealing with the eye, without disastrous results.

There are special needs of the eye to be borne in mind for general nursing. One is, that the eye requires the best conditions of rest and nutrition in order to do its ordinary work, without damage and danger. A disease like typhoid fever, or even influenza, that weakens all the organs and impairs nutrition of all the tissues, makes it dangerous to use the eye, even for ordinary seeing under the usual conditions. In seeing, the sensitive retina is exhausted and becomes less sensitive. Unless the retinal substance that is sensitive to light is quickly replaced, further seeing is impaired and interfered with. If the eyes are to be used, they must be kept supplied with the necessary materials by very active and perfect nutrition. To use them without this condition for their activity, always harms them.

Too often, when the patient knows he is too weak to walk, or even to stand, because the poisoned or impoverished blood is not able to supply strength to the big muscles, he will still try to read to pass the time; although the small muscles and the nervous tissues used in reading are even more dependent on the quality of the blood, and the abundance of nourishment, than are the big muscles that he is carefully resting. The harm done to the eyes by acute diseases such as measles and scarlet fever, typhoid or pneumonia, is generally the result of trying to keep on using the eyes when they are more in need of rest than muscles of the legs or back, or the heart, or stomach. When a patient is sick all over, the eyes are just as sick as any other part. And more care of them is needed from the nurse, because the patient will give so little attention to their need for rest, and disregard their mild or misunderstood protests against overwork.

This care of the eyes must extend to the arrangement of light in the room. It is not light on things in the room, but light falling on the eyes, that hurts. If the eyes are turned so that they cannot see the window, shades may be raised or curtains drawn aside, without danger of too much light. But if the eyes are looking toward the window, the curtain may be closed, or the shade pulled down, but a crack of bright light between will be very unpleasant and harmful. It is generally *not too much light, but too strong contrasts,* between bright light and comparative darkness, that make the eyes suffer.

In the care of sore eyes there should always be this care to avoid contrasts. When the eye has to be dressed, the patient's face should not face strong light, but be placed so that the light will fall across it. This cross light (oblique illumination) brings out what is to be seen in or about the eye, better than a glare of light coming from directly in front. When we close the lids it is not so much that light is shut out, as that light entering the eye through the lids is made uniform in all directions. The preventing of bright light from reaching the eye, from any single direction, is more important than general darkening of the room.

In preparing instruments for operation on the eye, there is need for special care on account of their delicacy. The point of a cataract knife may be ruined by touching something, when the person holding it did not know that anything was touched. It is easy to make these smooth, highly polished knives sterile, but not easy to keep their points perfectly sharp. Chemical disinfectants that leave the surfaces tarnished, are more dangerous than the possibility that germs may be left on them, after careful washing with distilled water. Heat is the great disinfectant for such instruments. They will stand boiling water for a minute or two, or repeated dipping into it; but they will not stand having their edges brought against other metal instruments. Most eye surgeons will not trust the nurse to sterilize their cataract knives, but prefer to have them sterilized by dry heat, or to dip the point into boiling water themselves. The importance of having surfaces and joints untarnished, so that they will not harbor germs, makes the drying of the instrument as important as its cleansing.

In giving assistance in eye operations it is always important *not to make pressure on the eyeball.* Even in holding the eye open, the lids should be pressed against the bone of the orbit, not against the eyeball, in any case. In placing a bandage about the eye, the dressing should not be pressed against the eye, but against the bones of the face. Generally the bandage should be made secure by other means, not by pressure. If pressure is to be made, let the surgeon make it, in the way he knows will not be dangerous. Even the pressure of an adhesive plaster dressing must be carefully distributed where it will do no harm. After operations that open the eyeball, like those for cataract or glaucoma, the surgeon generally wants to change the dressings himself; so that every time the eye can be looked at he can have the advantage of knowing how the case is progressing.

Rest for the eyes after operation or injury, or during inflammation or general disease, includes several things: Avoidance of use of eyes, to see things; avoidance of light falling strongly on the eye, even through a narrow crack, or of sudden changes in the

[1]Abstract of talk to Section of Hospital Clinical Congress, Milwaukee, June 22, 1927.

brightness of the light; keeping the eye still, includes not turning it from one direction to another to see things, and not allowing it to jump or jerk, because the patient is startled by some sudden sound or touch. Everything that excites the patient's curiosity, or draws his attention in a new direction, is likely to provoke efforts to turn the eye in the direction of attention, or interest. General quiet of mind and body is thus important, as a means of keeping the eyes at rest. They move together so much that both eyes must be kept closed, to keep the one still that has been operated on; although the other eye is perfectly well and could be used without danger to itself.

Telling the patient what to expect, to prepare him for any occurrence that might otherwise be startling or alarming, is one way to secure quiet. Another is to keep the mind occupied by conversation, or reading that will keep one from getting "restless." Changing the position of the body, quietly and within the limits allowed, prevents uneasiness from trying to remain continuously in one position. But all movements should be made deliberately and quietly. The patient who has "nothing the matter" with him, except his eyes, and requires very little of the ordinary help given to patients, may still tax the alertness and resources of the conscientious nurse, as much as one who is very sick; a sick eye is in a sense a sick patient.

The usefulness of an eye is easily diminished by little defects of healing, that could not be detected anywhere else. Its appearance is so important to the general appearance of the face, that attention to minute details of eye nursing is justified and demanded, in much the same sense that greater care is required from the nurse when the patient is very ill. Little things may turn the course, to a good or a bad ending. The need of good nursing is real when only the eye is sick; although the need is for a different reason.

HOSPITAL COSTS AND CHARITY

Elmer W. Reading

A committee of the Michigan State Medical Society, appointed to investigate charity hospital service in the state, has published a few of its conclusions and recommendations, which are of considerable interest to all hospital managers.

An interesting truth stated by the committee is that every patient of the ordinary community hospital, in one sense, is a recipient of charity. This is true, as the committee points out, because the original cost of buildings, equipment, and major improvements are not, as a rule, charged to patients, and these hospitals are exempt from taxes.

The above is a statement of fact that nobody will challenge. Furthermore, it sets forth a condition that very few would wish to have changed. But there does seem to be a growing disposition to question the prevailing manner of distributing charges to patients and of financing the free service of community hospitals. Much is being said and written regarding the cost of hospital service to the patient of moderate means. The Michigan committee recommends a more equitable distribution of charges to patients and the financing of several common hospital activities by other means than by the fees collected from patients.

"Hospital care," says the committee report, "is necessarily costly, and places a heavy and often unanticipated burden on patients . . . . Your committee believes that it is the duty of governing bodies to relieve patients of every unnecessary expense, and that it is unjust to a citizen of a community, when he is admitted, to pay for more than his share of the upkeep. It believes that hospital rates should (as far as it is possible to do so) be adjusted in such a manner that patients with the more expensive accommodations should not pay the way of those in the wards or cheaper accommodations. The relative proportion of wards and rooms is rarely adjusted to meet the pocketbook, and patients are frequently forced into rooms that are beyond their means. Again . . . . fairly well-to-do patients, to save expense" (sometimes) "elect to go into a ward, and are carried at less than cost."

The nursing school seems to be driven to the sea by the barbarians and driven back upon the barbarians by the sea. Hospitals are being severely criticized for doing an injustice to student nurses by using their services too freely in order to save the cost of graduate nurses. On the other hand, this report says:

"The cost of maintaining a training school for nurses and for special nurses is a heavy one. It (*the committee*) believes that a training school should supply as much as possible of the nursing to be done in the hospital, to save special-nurse charges, and that at least a part of the expense of maintaining the training school should fall upon other shoulders than those of the patient. Except for the immediate service rendered, its objects bring no direct good to patients in the hospital who are now obliged to pay for the maintenance of the training school. As an example, some of our training schools are preparing nurses for social-welfare work, a burden which plainly should be placed upon the community rather than upon patients."

The above suggestions are a part of the problem to be solved in the reorganization of the nursing school. While some hospitals have discontinued the nursing school because it doesn't pay, the time seems to have passed when the purpose of the school was, largely, to supply cheap nursing. The hospital exists primarily for the patient and the school primarily for the nurse. There is room for cooperation between the school and the hospital. The patient can be charged for whatever efficient service he receives from the student nurse and some other source can be drawn upon for the remainder of the cost of nursing education.

Another drain upon hospital resources that the Michigan committee says "should be placed upon other shoulders than those of the patient" is the maintenance of the outpatient department. As the report remarks, this is now being taken care of by some hospitals without charging the deficit to pay-patients in the institution. And another item of hospital cost is the sometimes high percentage of the uncollected bills. This, the committee believes, could be kept down to less than five per cent of the charges.

Another recommendation of the committee is that the charge made to corporations for the care of industrial patients and to charity organizations for cases referred by them, should be the actual cost of such service. Certainly it does not seem right, at least in the first case, that a part of this cost should be charged against other patients or against the general resources of the hospital.

Finally, the committee protests against doctors being asked to donate their services to hospital charity patients who are able to pay at least in part.

Hospital Progress

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MORE ABOUT HOSPITAL LIBRARIES

The subject of the reading of patients is getting more and more attention both in hospital periodicals and during conventions, and this is as it should be. The real wonder is that in the midst of other developments of hospital work, the care of the patient's reading has lagged so far behind. It is only another instance of the truth that the needs of the body are always likely to be emphasized and attended to at the expense of the needs of the spirit. But now the more enlightened hospital administrators and the students of hospital work are beginning to see more and more clearly the great influence of the mind on the body, and this is making them take more and more interest in the matter of reading of their patients.

Our Catholic system of hospitals have an opportunity of leading the way in this important development of the future. Two books, "The Patient's Book" and "The Patient's Guide" have been published under the auspices of the Catholic Hospital Association, which are directly intended to meet the patient's need for inspirational reading and to open the way for the hospital to a regular and systematic effort on behalf of good reading for the patient. The contents of these books are so arranged as to instruct the patient about the workings of the hospital, to give him definite and practical suggestions about his own mental attitude toward sickness, to make him cooperative with the efforts of hospital workers and to give him consoling thoughts, cheerful and stimulating, which will help him through the dreary days and the sleepless nights that he may have to encounter. When once the patient has become interested in this reading, he will be more ready to take up other books offered him by the hospital workers and his whole attitude will be more docile, interested, cheerful, and cooperative.

These books are a new departure in welfare work for the patient. Some of our hospitals have shown a remarkable appreciation of the books, have put many copies in circulation, and have sent in earnest messages of appreciation. Their patients will rise up and call them blessed. They minister to souls.—*A. B.*

THE DESIRABLE TWO PER CENT

Quite a number of the firms with which hospitals do business allow two-per-cent discount for the cash payment of bills, yet they complain that some hospitals not only do not take advantage of the two per cent but let bills run on for several months without attention. This, no doubt, is an exception, but where it occurs, the following suggestions might be worthy of consideration.

One can borrow from a bank at a rate much less than two per cent per month. Especially in cases of large accounts where the hospital has not the funds on hand, it would seem much wiser to borrow from the bank and pay the bill at once, thus securing the cash discount, than to allow a short delay to deprive the hospital of the two per cent. Such economies as these may seem trifling, but they mount up to vast sums in the aggregate. If it is true that our Catholic hospitals alone spend a million dollars a day, then a saving of two per cent a day would mean twenty thousand dollars a day, or something like seven million, three hundred thousand dollars a year. Of course, our hospitals could not save so much by merely paying cash, as they do not receive a cash discount on everything, but this with other similar economies might effect savings which would mount up to vast sums, even in the course of a single year.

If at their present rate of expenditure, all our hospitals could average a saving of two per cent a year, they would save seventy-three million dollars a decade, even at their present rate of expenses. Yet everyone knows that these expenses are increasing from year to year, so that even slight economy would mean vast sums available for expansion and development.—*E. F. G.*

THE MEDIOCRE HOSPITAL

The word mediocre is very descriptive but no one likes to be described by it. It means middling, of poor quality, undistinguished, unworthy of special notice. Both individuals and hospitals naturally shrink from such a description, but unhappily there are some individuals whom the term "mediocre" describes to a dot and there are some hospitals to which the term fits just as aptly.

The mediocre hospital is utterly undistinguished in anything. It just "gets by," as the current phrase has it, without excelling or growing to excellence in any department of service. Its equipment is indifferent, and its staff is middling, its service to the sick is so-so. The spirit of its work is listless, or at least unenergetic. Dante, in his wonderful poem, "The Inferno," imagines a sort of antechamber in hell which is reserved for those who never did any good or any evil in their lives. These unhappy wretches are unfit for heaven and do not quite deserve the weightier penalties of hell, so a special department is reserved for them, the limbo of mediocrity. In this conception the poet gives us clearly to understand what he thought of people who are content with mediocrity.

Hospital superintendents should be just as impatient with this deadening attitude. They should bestir themselves, if need be, to struggle forth from the attitude of contentment with merely middling service and should insist with themselves and others that the stigma of being mediocre should be removed from the hospital, its equipment, staff, services, and all that belongs to it.—*E. F. G.*

Christmas and New Year's Greetings

New-Year Peace, and Joy to officers, members, and to all who read HOSPITAL PROGRESS. We greet you at the dawn of '28. How eagerly we watch for each issue! How profitable its every word! May Heaven keep you in its keeping and when the year again rotates on the axis of time may it find you all basking in the sunshine of Heaven's smile, with the prospect of a brilliant future that is yours to come.

Sincerely yours,

St. Mary's Hospital,
(Mother M. Thomas.) *Grand Rapids, Mich.*

We, the Sisters of St. Mary, send hearty Christmas and New-Year greetings to Most Rev. Sebastian G. Messmer, D.D., Rev. Father Moulinier, S.J., Rev. Father Mahan, S.J., Rev Father Garesché, S.J., and all the members of the Catholic Hospital Association.

St. Mary's Hospital,
Kansas City, Mo.

What festival of the year makes the hearts throb with greater joy than Christmas—the Anniversary of the Birth of our Savior?

The greeting "Merry Christmas" so ancient yet ever new, brings gladness to the soul of every one,—rich and poor, the healthy and the sick. May it bring untold joy to all at this Blessed Christmastide.

Casting a retrospective glance over the past year upon the accomplishments of HOSPITAL PROGRESS, we must voice our appreciation of the untiring zeal and strenuous efforts of our esteemed president, Rev. C. B. Moulinier and his faithful coworkers.

With the approaching of the New Year we wish to express our gratitude for the many inspirations derived from the reading of HOSPITAL PROGRESS. May the blessing of the Child of Bethlehem abide with all who follow the footsteps of their "Divine Examplar" of whom it is said: "He went about doing good," and may He grant Happiness and Prosperity throughout the year 1928.

St. Elizabeth Hospital,
Mother M. Bernarda, O.S.F. *Lafayette, Indiana.*

To the Catholic Association, to HOSPITAL PROGRESS and its readers, to the Reverend Editor and his associates, we extend sincere wishes for a Holy and Merry Christmas and a blessed Happy New Year.

Sacred Heart Hospital,
(Srs. of St. Francis.) *Le Mars, Iowa.*

All good wishes for Christmas and New Year to the officers and staff of the Catholic Hospital Association, HOSPITAL PROGRESS, The International Catholic Guild of Nurses, and the dean and faculty of the College of Hospital Administration.

Sisters of Mercy Hospital,
(Per Sr. M. Xavier.) *Iowa City, Iowa.*

To Rev. Father Garesché and the editorial staff of HOSPITAL PROGRESS and to all its faithful readers we send our cordial Christmas greetings. We wish also to avail ourselves of the opportunity of expressing our appreciation of our splendid magazine HOSPITAL PROGRESS.

St. Joseph's Hospital,
(Sr. M. Josephine, Supr.) *Fort Wayne, Ind.*

The Indiana Conference of the Catholic Hospital Association sends to the readers of HOSPITAL PROGRESS warmest greetings and all good wishes contained in the angels' hymn on that first Christmas night so long ago. Oh! that we might all receive in full abundance these gracious endowments that Christ would shower upon us all. We all—Clergy, Doctors, Sisters, and Nurses—unite in all the truth of science and charity of Christ to make our hospitals a home of happiness for all.

The Indiana Conference,
Sister M. Odilo, Pres.

We wish to extend to HOSPITAL PROGRESS and those interested in that worthy magazine a truly happy Christmas. May the Christ Child bless the efforts and work of each member of the Catholic Hospital Association.

Sisters of Charity of the Incarnate Word,
San Angelo, Texas.

To the Catholic Hospital Association and to our very reverend and esteemed president, Father Moulinier, S.J., we wish to extend our warmest and best Christmas Greetings with wishes for many happy returns of the New Year. We owe a debt of gratitude to our president, Very Rev. Father Moulinier, for his untiring efforts in behalf of the Catholic Hospital Association and we ask God to spare him to us for many years to come. This is the sincere New Year wish of the Sisters of St. Dominic.

St. Catharine's Hospital,
(Mother Catharine, R.N.) *Kenosha, Wis.*

Occupational Therapy at Glen Lake Sanatorium
Procedure, Methods, and Scope of Work[1]

Mary Lydia Rowe, Oak Terrace, Minn.

Procedure

THE operation of an occupational-therapy department depends mainly on three things: The kind of institution, financial and shoproom facilities, and local conditions, due to situation and source of supplies. Glen Lake being a sanatorium for tuberculous patients, does not have to consider the mental side as a mental institution would, nor the orthopedic problem to any great extent. Our chief problems are reëstablishing habits of industry, gradually toning up the muscular system through exercise, and obtaining a better mental attitude through occupation.

We have regular O. T. cards on which the doctors prescribe the amount of time the patients can engage in O. T. work and the grade of work, whether light, medium, or heavy. We have our crafts divided into these three classifications. Under the classification "light" are sewing, embroidering, crocheting, rake-loom knitting, beadwork, reading and writing. Under "medium" are plaque work, mat-loom weaving, painting, easy leather work. Under "heavy" are leather work, reedwork, metal work, making of hooked rugs, wood carving, wood-block cutting, and carpenter work. No work or supplies are given until this card is signed by the doctor. These cards are gone over about every two months with the doctors to readjust changes and suggestions for the future.

A worker's chart is kept which is a record of each patient's work, the calls made, date each project is given, and number of articles completed by that patient. When a project is given to a patient, an estimate is made by the worker of the length of time necessary to complete it, if the patient works the length of time per day the doctor has prescribed. If it is finished much sooner than the allotted time, the worker knows there is overtime work on the part of the patient, and supplies for the next project are withheld until the time limit is up on the first one.

We try to cover all costs of supplies by requiring the patients to pay for the material they use in money, or, if they are not able to pay, they make duplicate articles of the same value. We have cash salesbooks—such as any store carries—in which to record sales and charge accounts. These are in duplicate form—the patient is handed the original and the duplicate is handed in by the worker at the end of the day with her money. All merchandise charged to the patient is signed for by him on the charge slip on delivery. Thus any misunderstanding is avoided. They are allowed to charge up to $5 worth of merchandise as it very often takes this much to complete a single project.

Being near a large city we have the advantage of a good market and sell articles made by the patients without commercializing the department. This we can control by making the prices so reasonable that the patient does not commercialize it. Selling their products creates in the patients a feeling of financial independence and is quite an incentive to continue the work. Our supplies are obtained through the purchasing department and through a shopper who goes in one day a week for small supplies which are not bought in wholesale lots.

Method

The sanatorium is divided into services—each worker being assigned certain floors and making regular rounds on these floors. The supplies are carried in carts made from strong coaster wagons which have an extra body on iron braces about eighteen inches above the original one. They are light and economical. These wagons are a great assistance to my ex-patient aides who would have difficulty in carrying large quantities of supplies, and the service to the patients is expedited as time is not wasted going back and forth from the shop to the wards.

There is only one shoproom so our work is carried out in the bedrooms and wards, using the shop as a dispensing and salesroom. The ambulant patients in the cottages come to the shop for their supplies and are helped with their problems in the shop.

Scope

Lack of shoproom limits the crafts which we can teach as some workshop subjects cannot be taught in the private rooms and wards. Our craft work is adapted to our cases. For instance a tuberculous bone case, flat on his back requires work which can be held in his hands. Cases in which the chest muscles have to be shielded carefully are given light mechanical work requiring the minimum of exertion, those with weak eyes need coarse work. At present we are teaching leather work, all forms of embroidery and needle work, beadwork, painting with dyes, lampshades, gesso work, reedwork, rug making, some wood carving, and rake-loom knitting.

The department consists of a director, six aides for floor duty, another to take care of the supplies in the shop, one half-time clerk for the bookkeeping and clerical work, and a full-time librarian, for the library which is classed under the O. T. department, making a total of nine workers and one half-time clerk. One aide in charge of the shop has worked out to be an economic necessity. The cutting of the leather, the keeping of the shop and goods in order, and the assisting of the other workers is under one head.

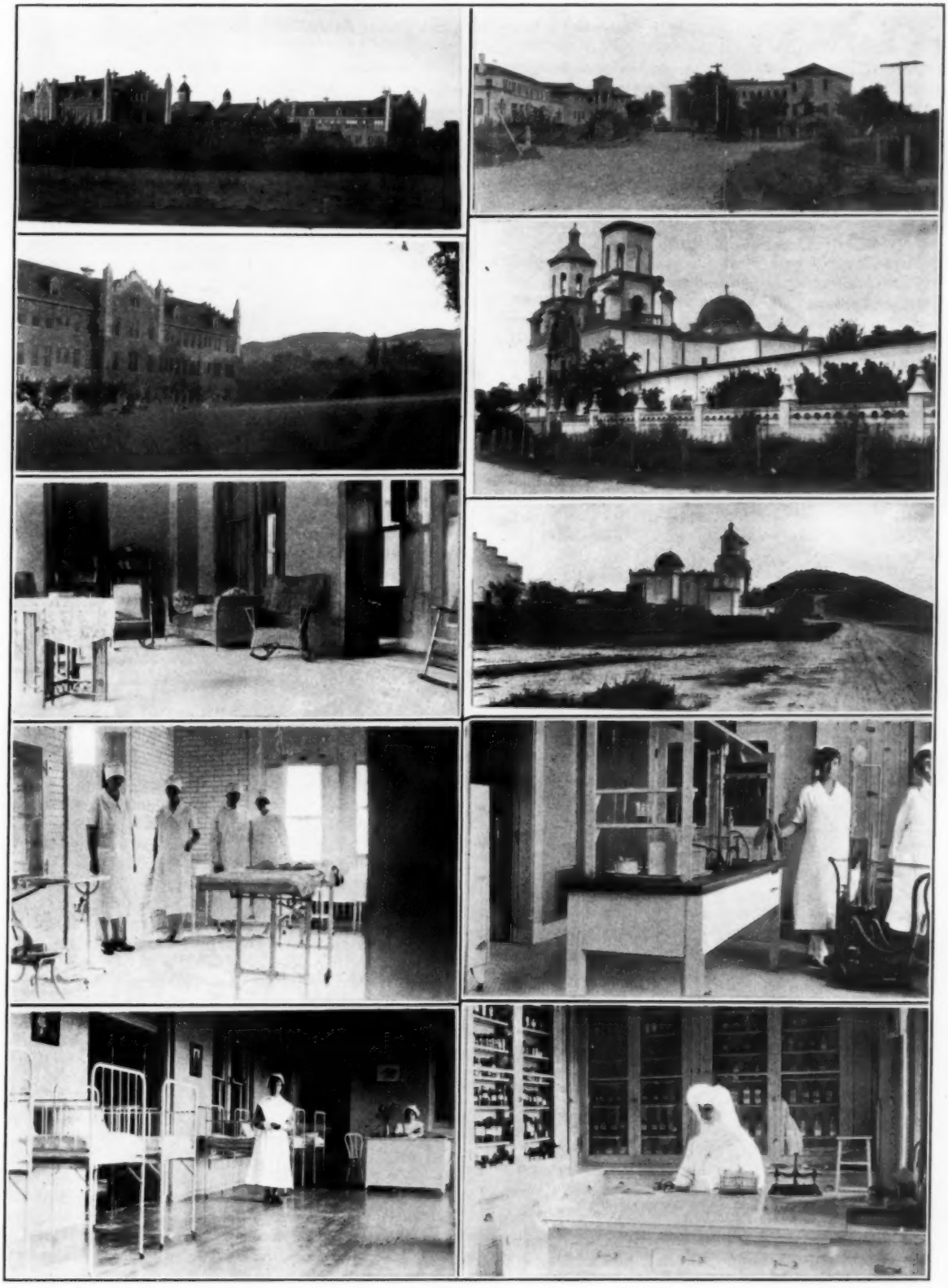
The library contains some 3,900 volumes and is a branch of the county library system, and for purposes of hospital administration is included in the O. T. department. The books are either gifts, purchased by the Trudeau Club of resident patients, or the property of the county library and remain at the sanatorium permanently. Our patients, under the direction of a trained librarian, are asking more and more for books other than fiction and last month our circulation was 2,713 of which almost a third was nonfiction. A simply classified catalog of the books in the library, in a loose-leaf cover for use on each floor of the hospital has been a source of satisfaction to the patients and an aid to the librarian.

Between three and four hundred patients work most of the time. The average number of articles completed each month of this year is 734. This year the shop has sold $1,884.20 worth of articles for the patients besides winning $70 in prize money at the state and county fairs. Sixty-five articles were entered at the state fair and forty prizes were taken, but, better still, the judges in grading them marked 63 at 90 per cent or over, the other two at 82 per cent and 89 per cent.

We are trying to raise the standard of workmanship all the time and encourage the making of practical projects in preference to those of no value. Under the State Department of Reëducation we have some classes in bookkeeping and stenography which is our gesture toward vocational training at present. Establishing the habit of work with O. T. makes it much easier to start vocational training when the patient is ready to take it physically. His interest and ambition are aroused, and he is usually begging for something he can do when he leaves the sanatorium.

[1]Read at the meeting of the American Occupational Therapy Association, Minneapolis, Minn., Oct. 10-12, 1927. Miss Rowe is Director of Occupational Therapy at Glen Lake Sanatorium, the tuberculosis sanatorium of Hennepin County, Minn., an institution of 600-bed capacity.

THE EDITOR'S PICTORIAL NOTEBOOK



Reading from top to bottom. Left: Views of Holy Cross Hospital, Salt Lake City, Utah—two exteriors, Sun Room, Operating Room, Children's Department.

Right: St. Mary's Hospital, Tucson, Ariz.; San Xavier Mission, Tucson, Ariz. (two views); Laboratory and Pharmacy, Holy Cross Hospital, Salt Lake City, Utah.

Various Kidney Diseases and Their Association With High Blood Pressure[1]

D. F. Daly, M.D., Mercy Hospital, Wilkes-Barre, Pa.

MEDICAL research work during the past few years, in America and Europe, has been largely concerned with the study of kidney and vessel diseases, and these studies have clarified for us many obscure phases of these ailments. We know how kidney diseases affect the whole body, how complications originate, and how they are to be treated. To understand well some symptoms and complications, it will be necessary to recall some of the facts of pathology and physiology.

Acute Nephritis

Let us begin with a consideration of acute nephritis. It is, as all kidney diseases discussed in this paper, a disease affecting both kidneys. It has no suppurative character. There are at the same time inflammatory and degenerative alterations. Richard Bright in Guys' Hospital, 1827, first drew attention to kidney disorders and pointed out their relations to albuminuria and dropsy.

Acute nephritis is very commonly caused by severe exposure of the body to cold weather or cold water; in other cases it is caused by an infection (scarlet fever, tonsillitis). The onset is insidious, and there are cases which, for a long time, show no symptoms; their victims continue working and do not know that they are ill. If such a patient comes to our office and we look over him in a superficial way, we do not find anything much wrong as he complains only of being tired, of having (some) headache, and so on. But the physician who is accustomed to examine the urine in every case cannot overlook acute nephritis, for he finds albuminuria and knows there is something wrong with the kidney. But to make the diagnosis, acute nephritis, it is not sufficient that we have found albuminuria. We find albumin in the urine in heart diseases, if there is a congestion of the kidney. If there is blood in the urine, the reason may be cancer, tuberculosis, hemorrhagic cystitis, etc., and the albumin test will be positive. In fever or after intoxications we find albumin in the urine.

It is of grave importance that we sometimes find, in younger individuals, albumin in the urine, which the patient has voided in the afternoon. But if he brings the urine he has voided in the morning it is free from albumin. In these cases we see that the presence of albumin in the urine depends upon whether the body was in a vertical or horizontal position. Therefore, we are speaking of orthostatic albuminuria. During the vertical position the column in these patients presses on the renal artery, for there is found lordosis. We can produce lordosis by laying the patient on a bed with a pillow under the lumbar regions. After twenty minutes albumin appears in the urine. Not only can a kidney condition of itself produce albuminuria: it can be produced also by asphyxia of the limbs. Jehle showed that if one ties up the limbs and then lets the blood stream again in the circulation one gets albuminuria. Probably there comes with the asphyctic blood, substances in the circulation which act on the kidney membranes. People with orthostatic albuminuria are pale and thin. Not because they are losing protein but because we find this anomaly in the asthenic constitution.

Treatment

It is important for these patients to take gymnastic exercises in order to become stronger and to develop their muscles. Thus, the column will be better fixed. The patients can then eat and do what they like.

If we examine the urine in every case we cannot overlook nephritis. But if we have found albumin we must look for the other symptoms of nephritis before we make a diagnosis. A symptom of great importance is dropsy and high blood pressure. The microscopical investigation of the sediment in acute nephritis shows casts and red blood cells and leukocytes. (Of great importance are dropsy and high blood pressure.) Here we must stop and make an excursion into physiology, for we must build our opinion about dropsy, not only upon a knowledge of kidney function, but of the water metabolism and our knowledge about high blood pressure gives us an understanding of circulation.

Effect of Water and Salts

The kidney is the place where water, salts, and urea are excreted. In the question of dropsy we are interested in the facts which belong to water and salts. Among the salts the sodium chloride plays the most important rôle. We should make a great mistake if we should believe that dropsy takes place because the affected kidneys are not able to eliminate water and salts, and, therefore, the retained water remains in the tissues. You know that in acute nephritis, edema is situated where we have loose connective tissue, as, for example, in the face under the eyelids. In decomposition of the heart the edema is found first in the lowest parts of the body, on the sacrum in lying, on the feet in walking patients. We believe that edema is somewhat independent of the function of the kidney, namely, the output of water. But we must give our reason for this modern opinion: We have cases of acute nephritis with anuria, or cases where less than one hundred c.cm. of urine are voided in twenty-four hours; this can last for days and there develops no edema. In other cases a person may catch a cold by standing for some time in cold water and the next day his face and feet are swollen. You see edema is fairly independent of the output of water in the kidney.

Water in the Tissues

We see dropsy in cases with absolutely healthy kidneys. In the so-called hunger edema, which has the aspect of edema of acute nephritis, there is no albumin in the urine, the water elimination is not diminished. On the contrary, we see a very light urine in great quantity. We remember edema in myxedema, where the affection of the thyroid gland is the cause of edema. In myxedema we do not have much urine in twenty-four hours; after administering thyroid-gland tablets the urinary flow is increased. But we know there is no action of the thyroid gland on the kidneys. The tissues are influenced and they do not retain any more water. On the other hand, there is the pituitary gland which also has a great influence upon water metabolism. It is the antagonist of the thyroid gland. The pituitary gland does not act directly upon the kidney. *Proof:* A frog gets pituitary gland. His body weight rises, even if the kidneys had been removed. Pituitary gland extracts inhibit the urinary flow and give the tissues the capacity to retain more water. So we use them in diabetes insipidus where the tissues have partly lost this capacity. You know that nobody ever saw anything abnormal in the kidney in diabetes insipidus. The function of the kidney not only depends upon the glands of internal secretion but it is also regulated by the nervous system. There is a center which regulates kidney function and makes the connection between tissue and kidney. From the content of water in the tissues depends the urinary flow. Here the liver plays a great

[1]Read before the Luzerne County Medical Association, May 19, 1926.

rôle. It seems that the veins of the liver have an apparatus which can, making a spasm, retain water.

Let a person drink 1,000 c.c. of water at eight o'clock in the morning. He will void in urine about as follows:

Time	Normally	After Loss of Water
8:00- 8:30	50 c.c.	30 c.c.
8:30- 9:00	150 c.c.	60 c.c.
9:00- 9:30	350 c.c.	100 c.c.
9:30-10:00	250 c.c.	80 c.c.
10:00-10:30	100 c.c.	40 c.c.
10:30-11:00	80 c.c.	30 c.c.
11:00-11:30	60 c.c.	0 c.c.
11:30-12:00	40 c.c.	0 c.c.
Total	1080 c.c.	340 c.c.

You see how quickly the water is eliminated. In four hours a normal individual under normal circumstances eliminates through the kidneys the water he had taken. But if you let the same person thirst before you repeat this experiment, or if he had lost much water by sweating or by diarrhea, you see the water is retained. We see the output of water depends upon the percentage of water in the tissues. But if we make chemical tests of the blood in both cases, we find no differences; this shows that tissues—nervous center—and kidney are connected by nervous ways and that the stimulation for the kidney work is brought to the kidney, not by way of the blood. If now we add that the pharmacological analysis of caffein and novasurol show that they act upon tissue, we are fairly allowed to say that the whole metabolism of water is regulated by the tissues and the nervous system. We must remember that there is a spot in the brain which, when wounded, produces an excessive urinary flow. So dropsy is the result of a disturbance of one of the limbs of this chain (tissue-center-kidney).

In acute nephritis, it is true, not only the kidney is affected but the whole body. You see the skin pale as the vessels of the skin are contracted. One can observe in a microscope how thin and empty the capillaries are. The tissues are affected also, and surely dropsy takes place as these tissues have got a sudden avidity to take up water. A patient who has dropsy has a dreadful thirst. We will see in treatment of acute nephritis by measures which mobilize the water in the skin (hot packs) a raising of the urinary flow. If we give 1,000 c.c. of water at eight o'clock in the morning and observe the output of urine in the following four hours, and we measure the half-hour portions (quantity and specific gravity) we see that in a normal case the greatest portion comes after two hours and has the least specific gravity (1,001-1,004). It is called testing the function of kidney as far as dilution power is concerned. A normal kidney is able to make, in four hours, the output of water taken in the morning. But it is, in fact, no pure test of kidney function. The output of urine in the kidney is the complicated result of the connection between tissue-nervous system and kidney. The dilution test is a test *of the whole water metabolism*. We can continue the water test by a period of thirst. Then we have the concentration test. In this period (about 6 hours) the kidneys are forced to concentrate the urine, it means we get a very dark urine, but small quantities with a specific gravity between 1,025-1,035. We see how the kidney *function is adapted to what the whole organism* wants. About dilution and concentration power I will speak under chronic nephritis. Now let us return to the symptoms of acute nephritis.

High Blood Pressure

After albuminuria and dropsy comes a third symptom, high blood pressure, which again claims some minutes of our attention, the more so as my subject is "High Blood Pressure and Kidney Disease."

The blood pressure is given by the force of the heart and the resistance in the vessel systems. If one of these conditions changes, the blood pressure is changed. Here, we are interested only in the changes in the vessels. If there is a sudden spasm in the vessels the blood pressure will rise. That occurs, for instance, after an injection of adrenalin. The analysis shows that after the injection of adrenalin especially the vessels of the bowels are in a spasm. The spleen becomes small. On the other hand, if we tie up all the four limbs the blood pressure does not rise. But if we press the aorta abdominalis we get a rise as after the administration of adrenalin. So we can say that the blood pressure is in first line dominated by the condition of the vessels of the bowels. These vessels are standing under the influence of the central nervous system (the vasomotor center) by the way of the nervus splanchnic. This region is so important to the blood pressure that cutting of the nerves causes in the animal a dangerous fall of blood pressure and collapse. If the smallest arteries and capillaries of the skin of the face suddenly dilate we get a flush, if they contract we get pale, but the blood pressure does not change, for this region is not important to the *general* blood pressure. Spasms can take place in every organ; the symptoms will be the outfall of the function of this organ. If, for instance, the vessels of the retina are contracted, the results will be an amaurosis lasting as long as the spasm. These acute spasms with or without rise of the blood pressure are called vasculares crises.

Muscle Tonus

Let us make use of this knowledge in the question of acute nephritis and raised blood pressure. We know it comes from a spasm in the vessels of the body (remember the pale color of the skin) and we believe, that if the blood pressure becomes very high, that the splanchnic region is affected. These spasms are self-evidently a functionating state, the high blood pressure in acute nephritis is not the result of organic alterations of the vessels. Therefore, if acute nephritis is healed, there is normal blood pressure again. We can say that this return to normal condition is the surest sign that the patient is recovered. In these conditions the moving function of the vessels was altered. But there is still another function of the vessels, or better said, of every striated or non-striated muscle. It is the tonus. To give a definition of tonus is extremely difficult. In every textbook we find a different one. We can say tonus is a condition of a muscle, that it has a certain position without making a movement. The muscles of our face have a certain position as long as we are alive; if this were not so, we all would have very stupid faces. The urinary bladder can be filled or empty. The pressure measured in the bladder with a manometer is in every position O. This shows that the urinary bladder muscle is in every position in rest. This function is called tonus. The higher the tonus the more the muscle is felt reached. You know that movement of a muscle soon makes the muscles tired. In movement the muscle gives an electric stream (the heart, the electrocardiogram) once glycogen produces calories.

Function of the Vessels

Long-lasting spasms in acute or chronic nephritis or hypertonia, cause high blood pressure. The two functions of the vessels—first motion and second tonus—have an internal collection of power. These qualities are manifested by the vessels' being in one or the other position—*contraction or dilation* (like an oyster). If the vessels are soft there is no high tension, if hard, there is a high tension. We know that the radial artery, too, can have a very high tonus for years and years. We know there is a difference between blood pressure and tonus. The latter we can estimate if we roll the artery under our finger, or better, if we press the radial artery proximally with one finger; then we do not feel any more pulsation and we

feel the artery wall alone. Now we do not find an artery with a normal wall. An artery with hypertonia we feel like a whip or like a telegraphic wire, depending upon whether it is more or less wide. A radial artery may be of a very high tonus, the blood pressure 200 mm. Hg. and the patient shows almost no disagreeable symptoms. During life we have no direct knowledge about the condition of the arteries of the bowels, but we must believe that in cases of long-lasting high blood pressure there is the same hypertonia. After death all the arteries become soft, for hypertonia is only a functioning condition. After death tonus is O. That such a hypertonia of the artery is only functional is proved by the fact that the arteries become soft. After apoplexy where the tonus center of one side may be hurt, the artery on the other side becomes soft. Why do we find a high blood pressure in people with hypertonia of the wall? If, also, the tonus of the arteries of the bowels is high, then the arteries or arterioles are so well fixed in their position that they lose their elasticity. The arteries are perhaps wide, but cannot be widened with every heart beat. An elasticity helps circulation enormously, for the blood stream widens the arteries and coming again to their position they help the transport of blood. If the elasticity of arteries is lost, the heart must do more work. To maintain sufficient circulation, circulation must take place under higher pressure. The heart is overburdened and, therefore, we see an enlarged and hypertrophied left ventricle. If this lasts a long time the vessels become abused and at last there will be in this or other regions an anatomical change in the vessel wall—arteriosclerosis. This happens commonly in the smallest vessels of the kidney, and we get a contracted kidney. For these vessels are very sensitive. But we know of patients with absolutely normal kidneys who have had, for many years, hypertonia and high blood pressure. Let us now return to acute nephritis. We have cleared up albuminuria, dropsy, and high blood pressure. These are indeed the principal symptoms of acute nephritis. The high blood pressure and albuminuria cannot be remarked by the patient, and if dropsy is not plain and there is only a somewhat swollen face, the dangerous disease may be overlooked by the patient. The patient has mostly only general disagreeable feelings like weariness, no appetite, perhaps headache. If the patient is not sensitive he does not pay any attention to it. It is an advantage for the patient if there is early dropsy, for then he will be examined and the diagnosis is easily made. Unfortunately, there are some cases without dropsy. If, in this condition no care is taken and the patients are walking about, and are exposed to cold weather, the disease does not heal but it becomes chronic. Sometimes chronic nephritis is a reproach to the physician who overlooked the acute period. But with rest in bed and a therapy which spares the ill organ we can hope that there will be a complete recovery. The function of the kidney is to eliminate water, salt, and the end products of protein, metabolism (urea, uric acid, and creatinin). So we must give the patients as small quantities as possible of water, salts, and protein. We should nourish the patient with carbohydrates and fats mostly. We cannot give milk alone. It would take 2,000 c.c. at least of fluid and there would be too much protein, but we must give some milk. We can give milk with rice and coffee. During acute nephritis there are some dangers. For instance, the output of urine which is always diminished (there is a dark urine of high specific gravity) can become extremely small—anuria. If this lasts some days we get an intoxication which may cause death. Here, hot packs are best, we can try X-ray treatment of the kidney, and if this treatment has been in vain, decapsulation of the kidney. We believe that X-ray treatment and decapsulation here relieve spasms in the glomerular part. We must now speak about a dangerous complication of acute nephritis, the so-called acute uremia. It is characterized by headache, dyspepsia, vomiting and convulsions, and in some cases there is amaurosis or aphasia. Convulsions can come after a period of vomiting and headache (premonitory symptoms), or they can come on suddenly like epilepsy. The blood pressure in acute nephritis, you know, is higher than normal. But if there is headache and vomiting or the convulsions themselves, then we can see again a remarkable rising of the blood pressure. That shows that in acute uremia spasms play a great rôle, and we see a good effect following every therapy that lowers the blood pressure. So a dreadful attack of convulsions may be ended by a venous section or intravenous injection of .04 to .08 papaverin. Papaverin dilates those vessels being in a spasm. Some claim that a lumbar puncture is as good as a venous section. We must naturally give water, salt, and protein which is poor diet. Starve them for some time. Acute uremia is very similar in its symptoms to the eclampsia during gravidity, and in some of these cases one sees the same symptoms as in chronic intoxication with lead. In all these conditions the same therapy is given. We can see during an attack of amaurosis in saturnism by the examination with the eye mirror that the vessels of the retina are as thin as a linen thread. In one word we can say that acute uremia is a vascular crisis. During nephritis it is important to measure the blood pressure every day, as an extra rising of the blood pressure occurs before convulsions. Then we know that this is the opportune time to give papaverin injections, or make a venous section and by so doing often avoid the outbreak of severe symptoms.

Another theory claims that acute uremia is due to edema of the brain. But in both theories it is supposed to be due to lack of oxygen in the centers. For spasms of vessels are obvious against the circulation in the center. In the same way, if the brain should be swollen, the vessels are compressed as the brain is lying in the rigid

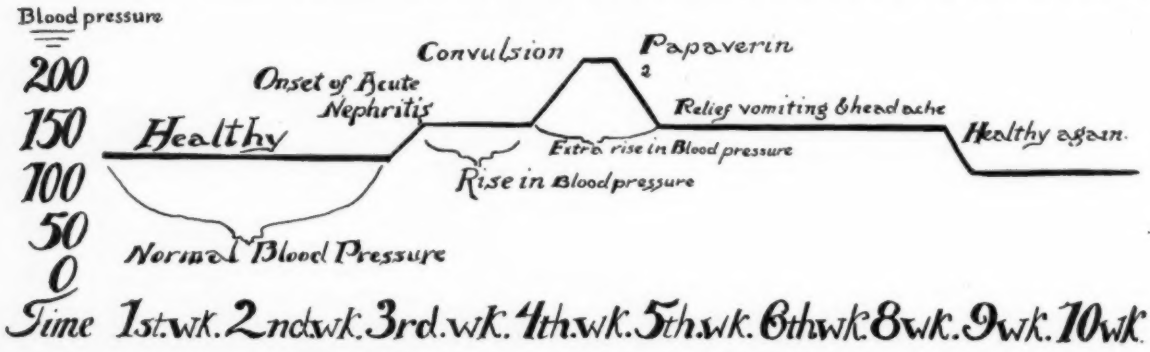


CHART ILLUSTRATING THE PROGRESS OF ACUTE NEPHRITIS.

skull. Some facts point to one and some to the other theory. For instance, the effect of venous section: It makes a flow of tissue fluid into the blood. That would speak for the edema theory, but it lowers the blood pressure, which can be taken as a proof for this spasm theory. If we keep a patient with acute nephritis in a warm bed, give him no salt, small amounts of water and protein, it is not necessary to use drugs to any extent provided we give fruit juices, white bread and butter, jam, sweets, etc. We can hope that the patient may recover after two or three months. But if albuminuria and high blood pressure last longer than four or five months we must be afraid that there is a development of a chronic nephritis. We can distinguish some periods in chronic nephritis; their length varies, depending upon the individual case.

Following Acute Nephritis

In the first period which follows acute nephritis, the patient does not feel any symptoms. The physician finds high blood pressure, albuminuria, a hypertrophia of the left ventricle and the second accentuated aortic tone. The patient wishes to live like a healthy man. What is the duty of the physician? He must tell him that he must avoid catching cold, that he must not drink too much, that he must not eat food with too much salt or too much spice. He must never be exposed to cold or wet weather. He may take cold baths as a precaution against colds. So we can avoid an acute exacerbation which would bring on a period like acute nephritis with all its dangers and possibilities of complications, but without the hope of a total recovery. We must confess that some persons with chronic nephritis can never have healthy kidneys again. This first period can stand many months or many years. Naturally we cannot desire that the patient eat salt-free food all the time. Besides, it would be of no use. I saw a case where spinal fluid and blood contained 80 per cent more NA. CL. than normally which is .6 per cent. This was lowered by a salt-free diet, but the blood pressure was not lowered. We have, in this period, already a very high blood pressure, about 200 mm. Hg. This fact means some danger. For at last, the heart, the left ventricle, may not stand the burden of working always against such resistance, and we get a decompensation with enlarged liver with cyanosis and dyspnea and dropsy. You see the picture of dropsy resulting from a heart disease. This may be strange at first sight; we have here before us a kidney disease but the dropsy is no renal dropsy. Therefore, we will treat it with digitalis, with theophyllin three times a day (.5 gram), but we give it only twice a week. If we give theophyllin every day it soon loses its good diuretic effect. We must not forget to forbid the patient to drink much water or other fluid. Further, we have in this period the danger that a vessel in the brain may burst and we have apoplexy before us. Finally, patients may get sudden attacks of edema of the lungs. An immediate venous section can in these cases save lives. In a second period the dilution power and the concentration power of the kidneys become diminished.

If in this period you let the patient drink 1,000 c.c. of water in the morning and then let him thirst till evening, you have quite another outcome of the test than you have in a normal individual. Now we see that the patient voids every half hour the same quantity with almost the same specific gravity (1,010-1,012). We called it isosthenuria and can say that the patient has an insufficiency of the kidney. If concentration and dilution power of the kidneys is lost, the kidneys cannot eliminate the end products of protein metabolism sufficiently. These will accumulate in the blood and in the tissues, and we see the rest of the nitrogenous bodies increased in the blood.

To show insufficiency of the kidney we have another very good test: the sulphate test. Give intravenously 10 c.c. of a 10-per-cent solution of theosulphate $Na_2C_2O_3$. Collect urine for three hours, titrate with 10 per cent normal iodine, use starch as an indicator. One c.c. of iodine solution equals 158 mgs. of theosulphate. Put in starch as indicator then run in 10 per cent normal iodine until you get a blue color. In normal persons you will recover 300 mgs. in three hours, that is, 70 per cent is destroyed in metabolism. The normal output is 25 per cent to 35 per cent; below 25 per cent is not normal and the lower it is beyond this point, the more pathology in the kidney.

If it has gone so far as described above a new danger is not far off; it is chronic or real uremia. This comes very insidiously but it kills its victim without mercy. There is first a weariness: Patients are sleepy and drowsy, they have a damp feeling in the head. They are afterwards in a lethargy but can be awakened and they give reasonable answers to questions. There develops a dry pericarditis and pimples on the skin. Lethargy becomes deeper, respiration louder and greater, and at last comes the inevitable end. We can do hardly anything to avoid it and not much to bring relief. In autopsy we find contracted kidneys with signs of inflammation.

After having described the history of acute and chronic nephritis with its complications and dangers let us return to the first period of chronic nephritis. Here the principal symptom is high blood pressure. We see high blood pressure without chronic nephritis in the so-called essential hypertonia. It is an affection of the arteries resulting from an unknown reason (perhaps from often-returning spasms which come from psychical excitement?). In chronic nephritis hypertonia of the vessels originates from the described spasms during acute nephritis, which are caused by an unknown poison. In chronic nephritis the high blood pressure is only one symptom (a dangerous one), in hypertonia it is the only symptom. There are the same dangers (apoplexy, decompensation). The attempt has been made to distinguish between a red and white hypertonia. We all know people with high blood pressure who are stout, have a red face, and feel well while others are pale and meager. It was claimed that these latter have a primary contracted kidney. The first have the kidneys intact. Further investigations will show whether this theory is true or not. Hypertonic vessels have a special tendency for spasms. We often find in hypertonia, angina pectoris, intermittent claudication, etc. Osler reports a case: A patient woke up at night and felt that he could not move his right hand and foot. He wished to cry but could not move his tongue. The servant came with a light but the patient could not see anything. Osler found the arteries like whips, and made the diagnosis as hypertonia with high blood pressure and apoplexy. He was very much surprised when all symptoms had disappeared the next morning, for there had been only functional disturbances caused by spasms which had made a transitory asphyxia of the centers. In such a case, we make, as in apoplexy, a venous section. If the blood pressure is lowered by it the spasm may disappear. In simple hypertonia a long rest can lower the blood pressure. The treatment with salt-free food has not been very successful. Of great importance is psychical calming. The differential diagnosis between hypertonia and chronic nephritis can be very difficult, for in early periods of both the kidney function is still almost normal. We can say that in cases where there is no albuminuria (only blood pressure) there is surely no nephritis. Changes

of the eye ground occur in both. Only the star figure speaks for chronic nephritis. In malignant cases of hypertonia (with contracted kidneys) in later periods there comes chronic uremia as in nephritis. It is best to ask the patient whether he remembers if he had, at one time, an acute nephritis, or scarlet fever. If he had, he probably now has chronic nephritis.

Till now I have spoken of nephritis, it seems a disease of the glomerular part affecting totally both kidneys. If there is only a disease of some region of the kidneys (embolies, tuberculosis, etc.), we have albumin, casts, and red blood cells or chronic uremia.

Nephrosis

Now we must discuss what we call nephrosis, called tubular parenchymatous nephritis until 1905 when Frederic Muller applied the name "nephrosis." It is an affection of the tubular epithelium part. There is no high blood pressure, but there is much albumin, many casts, but no red blood cells in the urine. There always develops a pronounced dropsy of the skin and sometimes of the pleural cavities. Therefore, it is necessary to give a salt-free food, and to restrict drinking of fluids, as much as possible. In nephrosis we can give protein (meat or eggs) if we do not add salt in the kitchen. In nephrosis, sodium chloride and water are forbidden as they favor the development of dropsy; since we have known this we never see the dreadful dropsy of former times. Recovering depends upon the ground disease. Nephrosis is found after HgC_{12} poisoning and diseases, such as empyema, tuberculosis of the bones, lues, etc. If the ground disease is healed, nephrosis will probably heal too. Besides salt-free food we use urea to treat dropsy. In nephrosis it can be used with the best of results. But we must give 15 grams, three times a day, a dose which sometimes causes dyspepsia. Or we may give intramuscularly an injection of novasurol or the milder salyrgan, one or two c.c. twice a week. In desperate cases we are obliged to let the edema flow out through Southey's canules. To prevent erysipelas one must work with aseptic precaution and keep the wound moist in order to prevent a retention around the canules. Strauss of Berlin has seen two cases of uremia in nephrosis.

The Blood Tests for Nephrosis

The blood serum is abnormal, the fibrogin is increased which causes sedimentation of the red blood cells and settles more quickly. The test for settling time of the blood in nephrosis: Two-tenths c.c. of a 5-per-cent solution of sodium citrate and draw blood to one c.c. in the tube and allow to stand. If the individual has nephrosis, the blood settles much quicker than normal. This settling time is not seen in nephritis.

The other technic is: Take away the plasma, add equal parts of salt solution and you get a thick precipitate showing an increase of fibrogin. Some claim that this condition of the blood has a tendency to damage the kidneys.

Arteriosclerosis

We have spoken of almost all possibilities which can happen in kidney diseases in connection with high blood pressure. You will wonder that till now I have not used the word "arteriosclerosis." We have spoken many times of vessel diseases and you know arteriosclerosis is the most popular vessel disease. The word "arteriosclerosis" is 100 years old. It means rigidity of arteries. But first it was used in *anatomy* according to the findings in autopsy, where the arteries of the brain or the aorta, or the coronary arteries, are found to be changed. There is found a fatty degeneration of the intima; and only afterwards these degenerated spots are incrusted with chalk. That can take place in the aorta or in the coronary vessels, in the brain vessels or somewhere else, but it never becomes a disease of the whole vessel system. So the clinical symptoms are those of a disturbance in the circulation of the organ in question. We remember that hypertonic vessels have a tendency to spasm. We can say the same about arteriosclerotic vessels.

Arteriosclerosis (or atherosclerosis as Marchand said) can produce, therefore, symptoms of angina pectoris or intermittent claudication, gangrene, etc. It depends upon the localization of the anatomical process. If there is, for instance, an old man with giddiness, change in character, bad memory, we are allowed to believe that there is an atherosclerosis of the vessel of the brain. The blood pressure may be normal, that depends upon the condition of the vessels of the bowels.

In the radial arteries or tibialis one feels, sometimes during palpation directly, stones and sees a shadow-line with X-rays. The artery is like the throat of a goose. There is a deposit of chalk in the media. If the intima is normal, a disturbance will never occur in the circulation. This affection is never found in another organ. Therefore, it is of no importance to the patient.

I have tried to give you a picture of how vessel and kidney diseases are combined one with the other. The matter is a difficult one, but I hope that I have succeeded in throwing some light on the scientific work which has been done in recent years to clear up this matter.

Summary

An extract of liver has been obtained which possesses the property of reducing to a certain extent essential arterial hypertension. It has been used by Dr. W. J. McDonald of St. Catherine's, Canada, in 33 cases, with a reaction in 8 cases, resembling protein shock. Dr. Major of Kansas City also reports its uses in 40 cases.

A dose of 2 c.c. can be given twice daily or three times a week. It may cause a dizzy feeling, but within one hour, blood pressure falls 20-50, lasting 2-3-4-24-72 hours. You get better results in young people, no result in renal diseases. Rowntree of Mayo's reports a case of high blood pressure on which a lumbar sympathetic neurectomy of 2nd, 3rd, and 4th lumbar segments of the sympathetic chain was done.

A factor that I have not mentioned before is the importance attached to the acid balance of the diet. Much work needs yet to be done before it can be stated positively that distinctly acid urines are irritating to damaged kidneys, and that decreasing the degree of acidity will hasten repair processes. Evidence merely points in that direction at present. The fact remains, however, that in human nutrition, improperly balanced diets are almost always decidedly acid forming and the well-balanced diets are base forming. Sansum, Blatherwick, and Smith feel that urinary acidity can be reduced by diet, and that, as it is lowered, there is a fall in blood pressure, less shortness of breath, less dizziness, fewer headaches, and less casts and albumin in the urine. They have, by means of their basic diets, reduced the acidity of the urine to PH of seven or more.

Under such conditions patients afflicted with arterial hypertension and chronic interstitial nephritis appear to improve, as shown by a fall in blood pressure, a reduction in urinary casts and albumin, and other symptoms referable to this combination of diseases in 90 per cent of their cases. They found that many of the so-called normal diets contain too large a proportion of the acid-forming foods, and they theorize that such acid diets may be a factor in the etiology of blood-vessel change.

Chronic Nephritis	Nephrosis	Hypertonia	Atherosclerosis	Chalk in the Media
Early: The patient feels no symptoms.	No symptoms.	No symptoms.	Angina pectoris.	Nothing.
Later: Decompensation, apoplexy, finally real uremia.		Decompensation, apoplexy.	Intermittent claudication.	
Physician Finds: Albuminuria, Casts, High blood pressure. 2nd aortic tone accent. Left ventricle enlarged. Rigid arteries. In last period: Concentration power is lost. Followed by chronic uremia.	Edema of eyelids and loose connective tissue. No decompensation. No apoplexy. No enlarged left ventricle. Large amount of albumin and waxy casts. Blood nitrogen normal. Blood pressure normal.	Rigid artery, high blood pressure. 2nd aortic tone accent. Enlarged left ventricle. Sometimes albuminuria. Uric acid increased in blood.	Systolic murmur of the aorta.	Goose-throat artery.
Autopsy: Contracted kidney with inflammation symptoms.	Usually died of pneumonia. Kidney tubules show involvement.	Primary contracted kidney or nothing.	In this or other organ degeneration of the intima, incrustated with chalk.	Chalk in the media of the radial or tibial artery.

In nephritis with edema use a salt-free diet for two weeks and get a total salt excretion in 24 hours, which is not over one gram.

A sound understanding of the pathology of nephritis, a sensible appreciation of the altered physiology, and some knowledge of dietary principles will always remain the basis for the satisfactory treatment of kidney diseases.

Dr. F. M. Allen states that protein plays a part in many nephritic cases, but he believes the injury in the predominantly vascular type of cases is chiefly from salt.

Our observations, that salt restriction, when accurately carried out, gives strikingly beneficial results in the great majority of hypertension cases, have been confirmed by some writers, but contradicted by others who have great experience and reputation.

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Hospital Legal Problems[1]

Carl Zollman, LL.B.

THE first thing that must be considered in regard to a new hospital is, of course, that of organization. I assume that you will not be interested in private hospitals conducted in small communities by local physicians as a business venture—the deficit resulting from the general operation being made up by the charges made in the operating room. I further assume that your interest will not be in so-called sanitariums conducted for the rich, and in which the charges for room rent, attendance, etc., are adjusted to the pocketbooks of the wealthy. I am assuming that your interest is in hospitals which are charitable ventures from which the pauper is not excluded on account of his poverty or the prince on account of his riches. To maintain such a hospital it will be necessary for you to address yourself to the charitable instincts of your community for such a hospital cannot be conducted for profit for the simple reason that the amount realized from patients is not sufficient even to pay running expenses. Nor should any of you be content to build a hospital merely around yourself because you do not wish to limit the usefulness of your institution to your own life. The answer is that, to start with, you should organize a corporation under the laws of your particular state. You should interest the best lawyer in your city in your venture and have him draw up the necessary papers. He will be glad not only to give you good service, not only to do so for nothing, but in many cases he himself will become one of the patrons of the new institution and a donor of money toward its support. Besides him, of course, you should organize a board of trustees which should consist of successful professional and business men in your community.

[1]Summary of address delivered at the Hospital Clinical Congress, Milwaukee, Wis., June 21, 1927. Mr. Zollman is a professor of law at Marquette University, Milwaukee, Wis.

Choosing the Site

Your next problem will be that a proper site on which to erect your buildings. Such site should not be too far and not too near to the center of population. Where your hospital is of a special kind, such as a tuberculosis, cancer, or isolation hospital, other considerations such as local prejudices come into the situation. Be particularly careful not to choose a site merely because it is offered to you for nothing—frequently with very hampering restrictions. Just what your site should be, of course, is a matter of judgment applied to the local topography as to which the opinion of your board of trustees should be anxiously canvassed.

Plans and Contracts

Assuming that you have your corporate organization and your site, the next problem is that of proper buildings. No cheap firetraps should be thought of. Your buildings should be substantial and in accord with the very best and latest opinion. A trip of inspection to scores of modern hospitals of about the size which you contemplate will prove a profitable investment. Stepping before the community with a real project of substantial merit you can count on better financial support, for financial support you will need. Now, in going out after such support, do not organize fairs or pass the hat. If you do, many who would, if properly approached, contribute hundreds of dollars, will be content to eat a supper at the fair or buy some small article and go home highly satisfied with themselves. Approach your prospects with a definite plan and a subscription list.

The details of the contract under which your buildings are to be erected I cannot discuss at this time and place. The contract to be let will be like any other con-

tract for the erection of any other building and should be framed under the general supervision of your own local attorney. Any trouble that may arise in connection with such contract you should submit to him unless it is of such a small nature that you do not care to bother him with it.

Taxes and Insurance

Assuming that your building is erected and paid for, your financial problems are not yet all solved. You will have some income from the hospital but not enough to conduct it. Two outstanding expenses of all business institutions relate to insurance and taxes. One of these is practically eliminated so far as you are concerned. As to the other it behooves you to carry enough insurance but not too much. You should carry enough insurance to cover all losses which are apt to occur. Your lot will not burn, neither will the walls of your building if they are properly constructed of the proper material. Your fire insurance, therefore, should not take the cost of your building as a basis. If you did this you would be paying for losses which would never occur—in other words, you would be wasting money in useless insurance premiums. Just where to draw the line between too much and too little insurance is again a question of judgment on which you should take the opinion not of the agent who is selling the insurance to you—he is primarily interested in selling as much insurance as possible—but of real-estate experts in your own locality.

The statutes of practically all states exempt the property of charitable hospitals from taxation. This is a very important saving. Apply to your local assessor to obtain this exemption. If it is not forthcoming, put the whole matter before your attorney. If there is something in your particular manner of conducting your hospital which forms the impediment, find out what it is and make a change so as to entitle yourself to the exemption. Get all that you are entitled to but do not ask too much. If there is a street improvement on the street fronting your hospital, do not ask for exemption from this. Your property is as much improved as is that of other owners. Cheerfully pay this special assessment. You are not entitled under the law to an exemption from this and by asking for something which you are not entitled to you merely arouse resentment, give yourself a black eye, and in the end you will pay anyway—voluntarily or involuntarily.

Receiving Bequests

The savings accomplished by cutting down your insurance to its proper proportions and by insisting on your right to tax exemptions will not be enough to enable you to conduct a first-class hospital on the income received from the rent of rooms. You will have to rely on the charity of the community whether it takes the permanent shape of endowments or of subscriptions to cover the expense of a particular period. In your endeavor to obtain such help, temptations will come into your way which it will be very essential for you to resist. Some patient at your hospital will perhaps express the wish to execute his will and to leave a substantial gift to your institution. If this situation arises do not attempt to draft the will yourself. With all due respect for your accomplishment along various lines you are not fit for this particular job. You will probably bungle it up. There is no subject more difficult in the law than that of charitable gifts. But assuming that you have the necessary ability properly to draft the will, do not do so as a matter of absolutely fixed policy. Call in the patient's attorney and do not undertake yourself or allow any of your help—except in case of extreme necessity—to sign the will as witnesses. For such wills are easily attacked and your position will in such a case not be a comfortable one. The mere fact that you have sought no personal gain will not protect you from the charge of having used undue influence.

An abstract from a recent opinion handed down by the Wisconsin Supreme Court may not be amiss at this time as illustrating what has just been said. A hospital and home association nursed an aged property owner until his death. The secretary of the association, a Rev. I., procured from him the execution of a will in which he left a large share of his property to the association. The court said:

"A minister of the gospel should not only avoid evil but he should avoid even the appearance of evil. He should not only avoid prostituting his office to promote temporal desires, but he should avoid even the appearance of doing so. In this case the Rev. I. frankly admitted that his intrusive and unwelcome visits were prompted by a dual purpose and were made in a dual capacity. That this was a fact is not left to speculation. We may well believe that his dominant purpose was to procure a bequest for the hospital association, and that his desire to promote the spiritual welfare of the testator was a mere pretense and sham under cover of which he was enabled to intrude himself into the confidence of the testator. The results accomplished impugn the motives and loudly proclaim the abominable sordidness of his purpose. He not only directed the estate of the testator into unnatural channels, but he studiously and insidiously nursed an unnatural feeling on the part of the testator toward the relatives of his blood. Not only the will, of which he procured the execution, but the unnatural and unjustified feeling toward his brothers and sisters which the testator carried to his grave, mark the handiwork of the Rev. I. It is blasphemy to say that such results promote the work of God. It is sickening to think of such results flowing from the work of spiritual ministers. There is something ghoulish about this whole proceeding. If such undertakings meet with the approval of those who minister to the spiritual welfare it is time that mere temporal sensibilities protest."

CORRECTION IN LIST OF APPROVED HOSPITALS

Through a mistake of the compilers of the list of Catholic hospitals approved by the American College of Surgeons published in the December issue of HOSPITAL PROGRESS, St. Joseph's Hospital, Baltimore, Md., was omitted. St. Joseph's Hospital is listed by the American College of Surgeons as fully approved. It has 275 beds and is in charge of the Sisters of St. Francis.

Likewise St. Vincent's Hospital, New York City, was omitted. St. Vincent's, with 350 beds, is fully approved. It is in charge of the Sisters of Charity.

St. Joseph's Hospital, Minot, N. Dak., should also have appeared on our list.

Hotel Dieu Hospital, Kingston, Ont., was unfortunately listed as conditioned. Hotel Dieu Hospital is fully approved.

Hotel Dieu Hospital, Beaumont, Texas, was listed with the address, Amarillo, Texas.

CHURCH UNITY OCTAVE

The Church Unity Octave is observed from the feast of St. Peter's Chair, Jan. 18 to the feast of the Conversion of St. Paul, Jan. 25. During this time all are asked to pray earnestly for the return of all wandering Christians to the one fold established by Our Lord Jesus Christ, and also for the conversion of non-Christians. One of the prayers prescribed for the Octave consists of Our Lord's words: "That they all may be One, as Thou, Father, in Me and I in Thee; that they also may be One in Us, that the world may believe that Thou hast sent Me." For leaflets containing prayers, address: Church Unity Octave, P. O. Box 316, Peekskill, N. Y.

Certain Advantages of Veneered Furniture

Wm. A. Hillenbrand, Batesville, Ind.

As far back as we know anything about civilization, the art of veneering has been practiced almost as it is used commercially today. There have been some advances, though they are in the practical and economic field only, not in the realm of art and beauty. As man gradually went forward in knowledge of the commercial and the economic laws, he acquired a finer skill in the art of veneering as in the other arts. With the development of this finish, he learned to continue in the perfection of his early art and to reject the harmful customs and practices which had so long impeded his progress. Man always kept alive the fundamental characteristics that formed the basis for the art of veneering, and to these he added the regular acquisitions of the stages of his experience.

In the very earliest days of Egypt, about 35 centuries ago, we are certain that the art of veneering was known. As a proof we have the extant relics of Tut-Ankh-Amen, Rameses, and the Pharaohs of lesser fame. Pieces of furniture of plywood build have been taken from the tombs of all of these ancient rulers. Little is known of the method used in the past to apply the wood, but these works of art have endured the ravages of time, and so speak for themselves.

It is not the purpose of this paper to trace the history of veneering from 3,500 years ago to the present time. It is sufficient to point out the origin of the art. Since we know that all art develops according to the laws of nature and according to the needs of man, we know that this art is no exception to the rule, so consequently through the ages it developed from its earliest origins along the traditional lines.

The industrial revolution affected the furniture industry in much the same way as it affected most other industries. After the upheaval, furniture was made by machines instead of by the old handicraft method. The result of this change was a glutting of the market with a superfluous number of novel designs in furniture which were nothing less than monstrosities. This furniture was cumbersome and awkward, because of the heaviness of its solid wood construction. The art of veneering was almost lost during this post-industrial-revolution period because of the expense entailed in making the veneer and the additional cost of the labor required to lay it over the solid wood core. From this time on, people have nursed an erroneous opinion concerning veneered products. They lost their faith in them because of the decline of the art, and also of their misconception of the meaning of the word "veneer." The term "veneered" came to mean anything superficial, deceiving, a surface covering to hide a really defective material. It can easily be imagined just why people came to regard "veneered" furniture as inferior to that of solid construction when they had this idea of the import of the word "veneer." As a matter of fact, the real definition of veneering is: The using of thin sheets of rare and beautifully figured woods in order to secure the maximum surface of matched and uniformly patterned figures. It is a process of utilizing the strength and beauty of various rare woods by cross laminations and layers of many thin sheets glued together. This process will be explained later.

The main point of this paper is to show the advantages of veneered goods, and the reasons why the veneered is better than the solid furniture. In proving this thesis there are six important fundamental arguments favoring the use of plywood and veneers which must be explained. *First:* Figured veneer is usually cut across the grain and is, therefore, fragile and needs a supporting foundation or base of a tougher substance. *Second:* Irregular figure in veneer always requires balancing and matching for symmetrical and artistic results. *Third:* Conservation demands that figured woods of substantial value should be used chiefly for artistic results and that the less valuable woods be used for strength. *Fourth:* Unbalanced internal stresses in solid woods can be equalized and maintained in balance by properly applied veneer of two or more equal layers, either figured or plain. *Fifth:* Curved, regular and irregular shapes, such as curved fronts of dressers, bow-end beds, and rims of grand pianos, can be formed by using thin sheets of veneer pressed and glued together in forms to produce the particular shape desired. *Sixth:* The strength of wood increases greatly when multiple layers are glued together, particularly when laid at right angles, one to the other, that is, a five-ply piece of veneered goods built up five layers each, of one-twentieth inch thickness, is stronger than a piece of ordinary lumber of one-inch stock.

Fragility of Figured Woods

The first advantage of plywood deals with the element of fragility of beautiful woods. It is necessary to explain the source of beautiful woods and how they are treated, in order to prove that they are impractical when used in solid form. The most beautiful figures in wood are caused by ruptured and twisted fibers. There are other, artificial, sources of securing the desired figure, however, as for example: cutting the log into flitches, and the rotary-cutting method. Common names for face veneers are: burl, stump, crotch, and rotary. Burl veneer is taken from protruding growths that have closely twisted and interlaced fibers, appearing like small knots. This type of veneer is very fragile and must be handled with care. Because of the structure of the grain and fibers, it would be impossible to use this in the solid form. Stump veneer, as the name indicates, is taken from the stump of the tree. It is cut in half-rotary flitches, thereby getting all the peculiarly curly and twisted figure hidden under the bark. This wood is also very fragile and cannot be used easily in solid form. The next type of veneer we shall consider is that taken from a fork in the tree or any other place that will produce the effect of a crotch, that is, some figure showing the junction of fibers or grains from two different angles. This wood is especially hard to handle because of its fragility and the brittleness of its fibers. It can hardly be used in solid form because of this quality. Rotary-cut veneer is the result of a process of cutting around the log, slicing at right angles to the grain. In this way the real figure of the wood can be secured. Solid pieces of wood cannot be cut in this way.

Owing to the abnormality of the structure of the fibers in the woods mentioned above, it would be impossible to cut from them boards one and an eighth inch thick. In the process of manufacturing even thin sheets of veneer from such parts, they must be artificially treated to keep them from warping, curling and checking. They are placed on some substantial base, strong enough to resist any fragile tendencies. This allows us the luxury of beautiful and artistic woods without the disadvantages that usually accompany solid lumber of the same texture.

Balance and Symmetry

The second fundamental reason deals with the balance and symmetry of figures. The wood figure is naturally irregular and unsymmetrical throughout the whole log,

consequently it must be pieced together and balanced so as to bring out the real beauty and make it pleasing to the eye of the artist. This element of balanced and symmetrical arrangement cannot be secured when solid wood is used. Even when thin sheets of veneer are used singly, the result is ludicrous, incongruous and awkward. Again, two adjacent sheets having practically the same figure must be trimmed and carefully matched before they will look balanced or symmetrical. It is quite obvious that this element of balance cannot be brought about when solid wood is used. Another good reason is that, because of the irregularity of the figure in the wood, it is necessary to cut off thin sheets about one-twentieth inch thick, in order to secure the same figure in several sheets, thus enabling a matching of the various pieces. We can see that in many cases it would be impossible to cut boards one and a quarter inch thick and hope to secure the same figure or design in each.

Through the process of matching and balancing, many patterns almost inconceivable can be designed. Skilled workers can produce a herringbone effect very easily, or they can make an entire panel appear like one solid piece of wood with the grain running true throughout. Other arrangements or patterns, such as "zebra stripe," diamond, and checkered effects can be produced by mitered and segmental arrangements. The very considerable improvement that inlay treatment of a panel with artistic patterns and designs is capable of imparting to an otherwise plain piece of wood, is so noticeable that when a designer neglects this part of his craft he is losing one of his best opportunities of designing an attractive piece of furniture. All of this must be sacrificed if solid wood is used, and instead of having a novel and cleverly attractive piece of furniture, the designer is forced to make his product plain and uninteresting.

Conserving Beautiful Woods

Owing to the fact that good, clear, figured wood is scarce, it is necessary to be economical and conservative with the present supply. From this fact we take our third argument in favor of plywood construction. By using plywood more people are enabled to have beautiful furniture at a reasonable price. We do not mean that, at present, veneered furniture is by any means cheaper than solid wood furniture, as is popularly supposed. If we analyze the cost of the two constructions of furniture we will find that this is not so. Only the best logs are cut into veneer, while the poorer and common logs are used in making lumber. These veneer logs are so expensive that it would be impracticable for the lumberman to saw them into boards of commercial thickness. Just the reverse is true about lumber logs. No veneer manufacturer would take as a gift a log that is good only for lumber. Because of its planeness, it defects, and the necessary waste there would be, it wouldn't pay to cut up the log. A very complete analysis of economic costs of the two constructions was arranged by E. V. Knight and Meinrad Wulpe, in their book, "Veneers and Plywoods," which we would like to quote. ". . . sheets of veneer one twenty-fourth inch thick and at two cents per square foot represents a fair market price. The equivalent value of lumber would be 48 cents per square foot, but it takes one and one-eighth of a log to allow for shrinkage and saw-kerf necessary to produce a board one inch in thickness, which would increase this equivalent value to 54 cents per square foot. This means $540 per thousand feet of lumber, which is obviously prohibitive. As a matter of fact, a two-cent veneer market about corresponds to a $200-per-thousand-feet lumber market, considering the normal market classification into logs suitable for veneer and lumber."

The two editors analyzed the problem by giving charts on how the dollar is spent in each case. It was found that each dollar would purchase the same amount of surface. This makes the cost practically the same, but the figure of the veneered surface would be superior by far to the plain solidly constructed surface. Anyone who can read charts can see that cheap furniture can be made very easily by using cheap veneer and by cutting down on the labor necessary to finish the product correctly. On the other hand, this chart will also tell you that it is impossible to make the very best furniture more cheaply by using veneer than by using solid wood. The labor cost of making veneered goods is about 34 per cent, while the labor expended in making solid furniture is only ten per cent of the total cost of production. This means that the manufacturer of veneered furniture can cut down on the labor cost and make cheap goods, or he can expend more money on labor and secure the best finish possible on woods, as well as the best pattern and design, thereby making a far superior product than the manufacturer of solid wood furniture can make.

Since this argument deals with quantity as well as with quality, it is necessary to show a comparison of the two processes in order that we may give a discussion of quantity. If the veneer log is cut into lumber of one and one-eighth inch in thickness we can easily see that only a small number of people can be benefited by this gift of nature, whereas, if the log is cut into veneer of one-twentieth of an inch in thickness, 26 more homes can be beautified by this method than by the former method. This is the strongest argument in favor of plywood, because no refutation can be given. Before this can be taken as certain proof, however, of the superiority of plywood, it is necessary to prove that a plywood case is capable of rendering service equal or superior to that of a solid piece of furniture.

Balancing the Internal Stresses

The fourth argument in favor of plywood is, that by correct application this construction will serve not only as a beautifier, but also as a balance for the internal stresses of the wood. Everyone has had experience with doors, window sills, and drawer slides under various climatic conditions and degrees of humidity. Everyone realizes that damp weather will make wood swell and that dry conditions will cause it to shrink. These are called the internal stresses of the wood. They may easily be unbalanced, and when in such condition may cause checking, warping and twisting of the wooden fibers. A board, well dried, will remain balanced just so long as the atmospheric conditions are static. The problem, therefore, is to keep the internal stresses permanently balanced.

Furniture men, especially cabinetmakers and finishers, have battled with this problem for ages. They have suffered rebukes from everyone who bought their products, and as a consequence gladly welcomed some solution to the problem. They found out that correct glueing up of several layers of veneer or lumber will give them perfect balance of the internal stresses, for example: in a table top made up of five-ply, the grain of the face and back veneer are both parallel with the grain of the corestock, and the intermediate crossings, called crossbands, have their grain at right angles thereto.

When these five pieces of wood are glued together, they form a rigid unit, possessing the element of balanced internal stresses. The right-angle grain keeps the other pieces from warping, checking and twisting, and the core, usually of some strong even-grain wood that easily resists distortion, makes plywood-constructed furniture far superior to solid wood. And so veneered furniture is not only more beautiful and artistic, but it is also more substantial and more serviceable. To give an example of

the quality of service rendered by plywood-constructed furniture, let me refer to the chest taken from the tomb of King Tut-Ankh-Amen. This chest is over 3,500 years old. It withstood the greatest test of service, the test of age. It is said that this piece of art is decidedly up-to-date in finish and construction. There are many other examples of ancient pieces of furniture which are worth knowing which are plywood constructed and have withstood the inroads of age. We have every reason to believe that if these pieces had been made of solid wood they would not have withstood the only real test of endurance—time.

Curved Uses

The last four arguments have, we hope proved that the plywood or the veneered construction is superior to the solid wood for cabinetwork where veneer is used flat. Now the two following arguments deal with the curved uses and engineering facts of the problem. Curved and irregular shapes can be formed by using thin sheets of veneer, pressed and glued together in forms to produce the particular shape desired. It is easy to give any number of examples or instances where such construction is needed. We shall just mention a few here; the curved fronts of bureaus or vanity dressers exemplify that built-up, jointed, and shaped lumber is necessary to obtain the swelled effect which is so graceful for such uses. Beds, both of the bow and roll-end types, are also examples of the same pleasing effect. Careful craftsmanship is necessary to make this type of work so preeminently fine that it takes a good finish and does not show its interior construction. It would be impossible to construct these pieces out of solid wood, because the joints would show, and they would be too hard to finish. Table pedestals of columnar form, used in the single-pedestal extension tables, must necessarily be made of plywood, because they would be too heavy and awkward if manufactured of solid wood. The knowledge of plywood construction has made possible a variance from the flat cases. Owing to the excellent manner in which plywood lends itself to construction it is now a simple matter to make convex and concave surfaces.

Engineering Facts

In the sixth argument it is necessary for us to prove that the strength of wood is greater when layers placed at right angles to each other are glued together. Government tests have proved that plywood at its best is stronger than solid steel and is stronger by far than solid wood. This strength is due to the fact that the arrangement, when properly applied, utilizes all the strength of the wood; so that it is able to resist, to the best possible advantage, the several kinds of stresses and deformations that occur in all forms of bending and tension. The government tests show us that a piece of wood will resist much greater tension and compression per unit of sectional area in the direction of the grain than it will at right angles thereto. They also show that the resistance of wood to shearing is less along the grain than in any other relation to it. Consequently if wood is built up five-ply, with each piece laid with the grain at right angles to the adjacent piece, there will be a double resistance against tension and compression, as well as against shearing. This will do away, therefore, with the possibility of bending, because the forces will counterbalance each other and hold the surface in a plane. This proves that, from an engineering aspect, furniture of plywood construction is superior to that of solid wood construction.

We have shown that plywood construction increases the ultimate strength of the wood, until it is stronger than steel on a weight basis. We have shown, also, that it exhibits the beauty of wood grain and figure until it rivals the skill of the artist. Along with these facts, we have proved that from an economical standpoint veneered furniture is more conservative, more serviceable, and in general, more economical than furniture made out of solid wood. By these arguments we hope we have shown that veneered furniture is superior to solid-constructed furniture.

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THE NURSES' SODALITY, ST. JOSEPH'S HOSPITAL, ASHLAND, WIS.

The Dietitian's Department

Conducted by Florence H. Smith, B.S., Department of Nutrition, St. Mary's Hospital, Rochester, Minn.
Suggestions and Correspondence Welcome.

IMPORTANCE OF DIETETICS IN THE NURSING-SCHOOL CURRICULUM[1]

Alice C. Patterson, Director of Nutrition, Children's Memorial Hospital, Chicago, Ill.

THE subject of dietotherapy, or diet in disease, is of utmost importance to the nurse. I believe there is no subject in the nursing-school curriculum today which is growing more rapidly, or which is arousing more interest, particularly in medical nursing. This may be due to the fact that our therapy is based upon more rational consideration of disease which makes it possible to place the dietary management of patients upon as important a basis as the drug management. Therefore, the rapid development of work in our nutritional research laboratory, especially in children's diseases.

It is pleasing to note here the appreciation of the medical profession, as well as that of the layman, of a balanced diet, since it has been definitely proved that many of our not uncommon diseases, such as malnutrition, pellagra, beriberi, keratomalacia, etc., are dietary deficiency diseases. It is also possible that eczema, another common disease, is aggravated by dietary errors.

To be able intelligently to carry out diet prescriptions, it is necessary for the nurse to have a clear and distinct understanding of the action of foods in the normal, healthy body. This means she must have a working knowledge of physiology, chemistry, and bacteriology. Her diet-kitchen training should be directly under the supervision of an experienced and highly-trained dietitian. To make an expert cook of a student is not the object of diet-kitchen training, but rather to help make of her an excellent nurse. To give her sufficient knowledge to enable her to fill a physician's dietary prescription as intelligently as the pharmacist fills his drug prescriptions, and at the same time prepare this food in such a way as to be both palatable and attractive. She should be able to impart to her patient such information as he may need regarding his diet, for most of our patients' diets must be continued after they leave the hospital.

At the present time, we have two distinct diets that require the highest skill of both dietitian and nurse, namely the diabetic, which we all know is no longer the fatal disease it was when we knew so little of the scientific management of the diet, and now we have the ketogenic diet for epilepsy which requires just as scientific management as the diabetic and which, we are grateful to say, is proving in many cases to be very successful. These diets, if not properly calculated, weighed, and measured may be as fatal as any drug prescription not carefully compounded.

The recently developed diet for anemia is another diet which is highly important, and the results of which are extremely satisfactory. This does not mean that the management of the diets for nephritis, ulcer, heart diseases, etc., are to be put in the background, for they are as important as any other and require as careful consideration. And what is more important than for a nurse to know the correct combination and amounts of the different food elements that go to make up a balanced diet for a normal individual? Indeed, many of our present-day diseases would not exist if mothers and children were taught the importance of correct eating.

Who should be better trained for this than the school nurse, the public-health nurse and the private-duty nurse? Here is the responsibility of the nursing school. What school would not be chagrined to know that one of her graduates failed in the technic of an obstetrical case, or was unable properly to care for a pneumonia case? Is it not equally important that she be capable of caring for a diabetic case, where practically all depends upon the diet? Unfortunately, we still have a few schools that do not give their students this training. A short time ago I had occasion to question a student nurse regarding her use of a gram scale. It was apparent she had never used one, and her reply was, "I was in the diet kitchen in our school three months, but we don't have to do this kind of work. All we do is make salads and desserts for our private-room patients." Needless to say this particular school does not employ a dietitian and it is evident the students are doing the work which any intelligent maid might be taught to do.

The nurse should be able to secure the cooperation of her patient and to arouse in him a scientific curiosity regarding his diet. In many cases this is hopeless, but in others it is highly stimulating and it is not unusual to get a good bit of suggestive information from the patient. One of the things we, as dietitians and nurses, must not forget, is the human element, and this enters into food selection as certainly as it does into anything else. Pity the poor patient on a limited diet who has an aversion to spinach and is made to feel that because it is good for him he must eat it. It is a wise nurse who avoids the much-disliked foods when planning a diet, particularly a weighed diet where every gram counts.

We are hearing much these days about standardization, and it is gratifying to know that a movement is on foot to standardize the dietary department of approved hospitals. With this standard in mind, I believe we shall develop a greater dietetic department, a stronger bond between the various departments and shall give to our nurses a training which they have every right to demand.

[1]Read at the Hospital Clinical Congress, Milwaukee, Wis., June 20-24, 1927.

SISTERS IN FRONT OF ENTRANCE TO NEW MARY IMMACULATE HOSPITAL, JAMAICA, L. I., N. Y.

The History and Romance of Terra Cotta in the Hospital

F. S. Laurence, New York; W. D. Gates, Chicago

I WILL endeavor to follow the very admirable example set by Mr. Stedman, the last speaker, and be somewhat brief in what I have to say, because sitting here and listening to the paper of Mr. Neergaard, which was read by Mr. Gregoire, and also the remarks of the last speaker, as well as of Mr. Higgins, it seems to me that a good deal of what I might say and what I had in mind to say has already been very effectively said by those who have preceded me. Looking at the practical side of things in what these gatherings are for and the limitations of time, it almost appears to me that I could let the pictures which are to follow do most of the talking, because I think you will see that they illustrate some of the principles we have been talking about.

Unfortunately, however, in the interest of a little accuracy, they do not relate so very much to hospitals. The picture which I have to show first is a motion picture which was not produced for the purpose of illustrating art in hospitals and doesn't deal with hospitals in any way. I will allude to that presently and also to the lantern slides. I think both of them will bring out very forcibly certain points and certain possibilities which were suggested by the speakers who have preceded, in what they have had to say about the desirability of art in hospital construction.

While listening to their remarks the thought crossed my mind that I don't believe there is anybody in this room among the Sisters or anybody else who doesn't agree heartily and thoroughly with everything that was said as to the desirability of art in the hospital, beauty and decorations too; but if that is the case then why is it we are not getting it in the average hospital building? It seemed to me, as I thought over that question, that the probable answer is this (it lies possibly in two things): First, in the thought that beauty and art mean expensive materials, and therefore is impossible and has to be left out because hospital funds are limited and we cannot afford marble, we cannot afford precious stones, we cannot afford lovely mosaics, beautiful embroideries, or things of that kind. The fact that that idea prevails very largely in the public mind is in a sense my justification for accepting this invitation to speak about terra cotta. I hope to show in the pictures which are to follow, and I hope it will be evident in the exhibit which we have outside in Juneau Hall, that the question of beauty has nothing whatever to do with the costliness of material, that the loveliest things can be done in the commonest of mediums. Terra cotta, which is nothing but common clay dug out of the ground, refined to a certain extent, properly mixed in proportions, is nothing after all but common clay, burned. As we look back into past history and particularly into the history of art we see that some of the noblest creations of mankind in the form of art have been wrought in that very homely and common material. You are all more or less familiar with the beautiful work done by the Della Robbia family in Italy, almost all of which was carried out in this common clay, afterwards glazed and burned, which we know as terra cotta. It has been developed very greatly since that time, and after hundreds of years' existence developed, finally, here in America to a building material which is capable of being applied in a very much wider way to the entire purposes of construction, at any rate so far as the exterior facing of buildings is concerned, as well as to interior decoration and in limitless ranges of color. It is substantially the same material as Della Robbia, Michael Angelo, Donatello and others who have brought to the history of the church such beautiful things, used so often and so freely.

Therefore, I say that possibly one reason we are not getting so much beauty in our hospital building has been because of the thought that to get beauty we must use expensive materials and I say that is not so. I hope that as we come to see, in the film, how terra cotta is produced, with the little explanation that I can give when the pictures come on, you will see why that is not true and why there is, therefore, an opportunity for securing beauty in the use of this clay which does not mean excessive expense.

The second reason which crossed my mind, as I sat there, as to why we were not getting beauty in our hospitals (and I don't think we are, taking them by and large) was the probable fact that the desirability, the necessity, in fact, of employing competent architectural service, is not appreciated.

Now a very great part of the problem of beauty, if not almost all of it, lies not simply in the materials that are used, whether expensive or whether cheap, but in the competence of the talent which uses those materials. There again it seems to me, looking at it purely from the standpoint of the layman, not as an expert on hospital construction (I don't know anything whatsoever about construction), but looking at it as a layman who has had to place members of his own family in hospitals, looking at it from that standpoint, it would seem to me that the thought which must have been uppermost in the minds of those who have planned and erected most of our hospitals has been the practical advantages and merits only, as scientific buildings. They must be absolutely sanitary, quiet, well adapted in their plan of layout as to what has to go on there relating to curative effort. Very little thought or attention has been given to the craving which we all as human beings, have for something beautiful in our surroundings or the contentment of mind that is induced by an agreeable interior, or agreeable exterior; or by a treatment which would not give the patient the feeling that he is going into a public institution, either as an object of charity or as a paying guest; that he is not going to a sort of glorified almshouse or barrack, with the disagreeable necessity of staying there until he gets well and then getting out.

I think that if, in considering the services of architects, more thought is given to the competence of their talent for handling the *aesthetic* side also, the decorative side as well as the practical, that very much better results could be secured than are being secured today, with the expenditure of virtually no more money than today, because brick is brick and terra cotta is terra cotta and stone is stone. No matter what material you use, the cost is very little different between good and bad design, artistically, although it may vary in any material, according to the method of treatment.

Those are the two principal things that crossed my mind. I don't know how familiar you are with terra

[1]Addresses at a general meeting on hospital achitecture at the Hospital Clinical Congress, Milwaukee Auditorium, June 22, 1927. Mr. Laurence is executive secretary of the National Terra Cotta Society, New York City. Mr. W. D. Gates is president of the American Terra Cotta and Ceramic Company, Chicago, Ill.

cotta, but to some degree you have been, undoubtedly, familiar with it, and have gained some idea of it in the remarks that I have made.

This motion picture which the Terra Cotta Society produced (as I said, the society is the technical and research bureau of the industry and is not a commercial organization), was produced with the view that very few people know what terra cotta is. They thought it was some kind of color and didn't know whether it was material or what it was. We attempted to explain that in a way which would inform the general public as to the nature of our material, how it was manufactured, what its possibilities were. It would be a very good thing to do and we produced this motion-picture film with that viewpoint and it has been going through the various educational circuits of the country and has been shown in a great many churches, schools, colleges, and universities.

In addition to that, I want to show, immediately following the display of that film, just a few lantern slides, some of which show some of the very beautiful architecture of Italy, as far back as the twelfth century, and some other interesting things in the modern application of terra cotta in the United States. So far as they bear on the possibilities of hospital construction or decoration I think they will be obvious. Art can be applied to one building as well as to another and there have been a number of hospitals where terra cotta has been used for decorative treatment very, very effectively. I don't happen to have illustrations of those particular American hospitals with me, but I want to draw your attention especially to this one aspect of the material as a clay material that can be molded freely into almost any desired shape and form by the hand of the sculptor. Ornamental forms are modeled by hand and the process by which they are reproduced literally repeats the exact characteristics and the exact touch of the sculptor's hand because it is accomplished by the use of a mold which is cast over the model.

The motion picture "Terra Cotta" and the lantern slides were then shown.

Remarks by Chairman Higgins

We want to thank Mr. Laurence for his very scholarly address on the subject of art in the hospital and for the picture "Terra Cotta."

As an architect myself I think one of the outstanding notes of the entire series of lectures so far was sounded by him in his second note when he said perhaps enough attention has not yet been given to the necessity and force and value of architectural talent. Too many of our Catholic institutions and of our institutions generally throughout the United States make the selection of the architect a matter of local or political friendship interest. They have forgotten that the selection of the architect has a great deal to do with the success of the building, not only on the side of efficiency, but of beauty, and I would stress again that valuable note, select your architect with the greatest of care and be sure on the side of beauty that your architect has had a sufficient technical and traditional background and education, rich with the tradition of the Catholic church, rich with the tradition of these magnificent structures which Mr. Laurence has just shown you.

We will have a few more remarks from Mr. Gates, president of the American Terra Cotta and Ceramic Company.

Remarks by Mr. W. D. Gates

My story has been told. Everything I could say and that needs to be said on this subject has been said and said eloquently.

I was thinking that we terra-cotta people are supposed to furnish good samples. We have had to lengthen our arms carrying samples from which to choose a color, and it occurs to me in being put up here as a sample of the terra-cotta people, I should make a little explanation.

Some five years ago when I had completed my allotted span, for some reason or other, they neglected to bury me and so I have been a walking delegate of the unburied dead down in Chicago. I didn't feel very physically competent to come up and speak to you but I couldn't resist the temptation of speaking once more on this thing that is very near to my heart.

The time is short and there are only one or two things that I want to suggest to you and one of them is the item of cleanliness. Think of the item of cleanliness in the housewife's department, where the food she serves you has to be served on something that is cleanly and which can be kept in a cleanly condition. If the average housewife sets out the dishes with your food three times a day, it is something like one thousand times in a year. She has to clean those dishes, just incidentally breaking one occasionally, but there is a test of what cleanly service is, it seems to me, that we have in daily use in this country. That is identically the same service that we furnish in terra cotta.

It has been my good fortune to be associated with some hundreds of men for the last forty years in manufacturing this terra cotta and there is a personal element that I want to call your attention to that has been more of a reward to me than any possible accumulation of money, because I don't seem to have been proficient in that. As a class of men they are enthusiasts. Clay workers seem to have enthusiasm instilled into them until they believe thoroughly in their business. They are inspired with the idea that they are leaving something tangible for future generations, that they are making their accomplishment and are doing something that will remain longer than they will remain physically. It has seemed to me that there is no other class of people that had this intense enthusiasm.

I have found in these forty years the most enjoyable part of my life with these earnest and enthusiastic workers who are doing what seems to me to be the most complete teamwork that I know of. The work that we have downstairs now and the pieces I show you are not my work and are not any one man's work but distinctly teamwork, and each man who has gone into it has brought something of his individuality into it. He has left something there that will last longer than his physical form will last. He has a personality he has wrought into that work and has sent it out in permanent form to stay. It seems to me sometimes that it is comparable in a measure to the composite pictures where they impose one film over another on a sensitive plate and get a picture with something of the individuality of the men whose pictures are superimposed on that sensitive plate. Our work is of that character. It isn't my work nor any individual's work, but it is the distinctive, earnest, and aggressive teamwork of a large group of men. They take pride in it. The men may well take pride in it. They say, "A good piece of work," and feel better. They have something of their individuality impressed into it—something more.

Some five hundred years ago there was a sculptor in Italy working mainly in marble. As you know, the man who is making marble statuary has first to model the thing in clay and then it is handed over in a duplicate. Probably in a search for clays Della Robbia undoubtedly went to the potter's. The potters in Florence then had some colored glazes—not glazes, but enamels. We call an opaque glaze an enamel. Della Robbia saw that and said, "Here, why can't I have my own individual work

perpetuated, not wrought into a hard, rigid, unyielding material?" So Della Robbia made those figures and he saw those enamels, and having to have them burnt anyway, he availed himself of what was available in the potteries of Florence. The result of that one act has made those things beyond price, and today, five hundred years after, they are priceless and treasured in the art galleries and museums of the world.

In Italy they didn't have to wrestle with some of the things we have here. We have a climate Della Robbia wouldn't stand. Forty years ago when I got interested in this business there was no literature on the subject. Pottery was a very secretive art. Each man knew one thing and that was, he had one of the most wonderful clays in existence. That has been changed since largely through the activities of the American Ceramic Society, which started with only twenty men and has grown until now we have members all over the world. There, active, energetic young men talented in chemistry have worked out their plans, doing a wonderful work and getting away from secrecy. If I have tried a thing and it wouldn't work, it isn't necessary for all the rest of the members to try that experiment. If I have tried a thing and it does work, it is for their benefit. The interchange has been wonderful.

The element of personality is the one thing I want to impress on you here, that the individuality of the workers appears in clay as in probably nothing else. The earnestness of these men, the love they have for their work is evidenced by an incident in France of a man who burned his furniture in his interest, and that is not an isolated case.

He had his material and his glazing but the glaze required more heat so he split up his furniture and put it on the fire. The heat was raised that much more and the glaze ran and the thing was finished. With us it isn't that same way. If the glaze runs, we have to get a use for it and a purpose for it and work it up and get it into operation.

There are people here who have burned their furniture in the interest of art. They may not have burned furniture, but things that have been wanted as luxuries, things they might have wanted in their homes, have been sacrificed. It might have been good clothes or trips but they have all been sacrificed and they will all have the same enthusiasm to get the heat and make the glaze run.

The Spirit of Providence Hospital, Seattle, Wash.[1]

Golden Jubilee of a Notable Institution

INSPIRED by love of Christ and zeal for souls a little band of Sisters of Charity of Providence arrived in Seattle 50 years ago to begin their mission of service. They had come in response to an urgent call to care for the county poor.

In February, 1877, Mother Praxedes at the House of Providence, Vancouver, Wash., received a message from Rev. Emil Kauten of Seattle requesting her to send Sisters to take care of the county poor. Father Kauten was then a young priest, acting pastor in the absence of Rev. F. X. Prefontaine, of the Church of Our Lady of Good Help, the only Catholic Church at that time in Seattle. The commissioners of King county suggested to Father Kauten that he put in a bid for the care of the county poor. He acted on the suggestion, was awarded the contract, immediately thought of the Sisters of Providence, and appealed direct to Mother Praxedes for Sisters to begin the work.

The Poor Farm

On May 3, 1877, Sisters Blandina of the Angels, Peter Claver, and Mary Aegidius reached Seattle and on the morning of May 11 proceeded to the farm and took possession of the poor house. The residence was a modest, two-story frame building, 50 by 60 ft. Six rooms, including the parlor, dining room, and kitchen, were on the first floor; above were six rooms for the patients. Not more than ten patients could be accommodated. The walls and ceilings throughout the building were of shiplap, and the whole interior was neatly painted. The Sisters spent nearly fourteen months in this modest home in the Duwamish Valley.

The first Mass was celebrated at the farm on May 16, an altar having been donated by a friend. The parlor had been transformed into a chapel, and the wild flowers and ferns which grew in profusion but a few steps from the hospital grounds were utilized in the decoration of the humble sanctuary which, to the Sisters, had become the Holy of Holies, since the Guest Divine had therein deigned to take up his abode.

The first county patient was admitted on May 19; this was a poor man who died three months later. Death claimed the first victim at the farm on June 14, a man who but a few months previous had opposed the Sisters' coming to take charge of the county poor, and had even been one of the bidders. It is not known by what speedy reverse of fortune he was obliged to seek the shelter of the county farm. In the annals of 1877, the resumé of that first year reads as follows: County patients, 25; private patients, 6; operations, 2; and night watchings, 131. Cramped conditions soon made themselves felt, and the Sisters thought it prudent to move elsewhere. It was not difficult to locate building sites in those days, for Seattle was but 24 years old and its population not more than 2,000.

New Location

The Sisters on the farm were visited on April 25, 1878, by Mother Praxedes and Mother Joseph of the Sacred Heart. Mother Joseph was widely known in Washington, Oregon, Montana, and Idaho, as the "builder." She superintended the erection of every academy and hospital built for the Sisters of Providence in Oregon and Washington from the time of her advent into the northwest until her death, which occurred in 1901. It became evident to the two Mothers that the Sisters had need of more commodious quarters and of a wider field for their activity. Before returning to Vancouver, they chose as a site for the new hospital the old Moss residence on Fifth and Madison. Mother Joseph returned to Seattle some weeks later to plan for the altering and enlarging of the building. On July 27, 1878, the Sisters and their four patients were transported from the county farm to the new home. On the same evening, neighbors came to ask if a Sister could go to a nearby house to remain during the night with a dying man. Notwithstanding her excessive fatigue, good Mother Joseph generously volunteered for this charitable service.

Naming Providence Hospital

For some time after the arrival of the Sisters at Fifth and Madison, their hospital was spoken of as the poor house, the name by which the hospital at the farm had been designated. Several names were suggested for the new hospital, but no conclusion could be reached until Judge Miller remarked: "Why not call the hospital 'Providence?' It is surely Providence that has guided the Sisters through all the difficulties with which they have had to contend." Thus began the existence and history of Providence Hospital.

St. Joseph Assists

At the close of the year 1878, the building was too small for the number of patients, but the Sisters were handicapped in the matter of building by lack of ground. They realized it was necessary for them to have the rest of the block in order to put up permanent additions, such as would serve for two decades at least. This ground was owned by Hon. Orange Jacobs, federal judge, and at that time mayor of Seattle. He contemplated erecting a beautiful home, and the lumber for this purpose was already on the grounds. Mother Joseph made an attempt to secure

[1] On the occasion of its golden jubilee, Providence Hospital, Seattle, Wash., issued "The Golden Sheaf," an exceptionally well-prepared booklet of nearly 100 pages giving a history of the institution and accounts of the various departments by members of the hospital staff of doctors, nurses, and technicians. The various articles were prepared for the public rather than for professional readers, but the editors of HOSPITAL PROGRESS feel sure that all hospital people will derive pleasure and inspiration from this abridgment.

the half block, but neither Judge Jacobs nor his wife were disposed to part with it. Undaunted, the good Mother sought the mediation of her patron, Saint Joseph, with the result that on Apr. 24, 1879, a transaction was concluded conveying the property to the Sisters for a very moderate sum.

Four years later, in 1883, the first permanent building was erected. In 1878, the institution could accommodate only 30 patients; in 1883, 75; in 1910, 150; and now, in 1927, 335. The Sisters have not been alone in the upbuilding of Providence Hospital, but have been aided by staunch friends through all the years; friends who advised, aided, encouraged, and cheered. Prominent among these is Rt. Rev. E. J. O'Dea, Bishop of Seattle, who has always been a true friend, a loyal support, a tireless advocate. The hospital is greatly indebted to the late Dr. George M. Horton, who was president of the staff from its very inception.

The New Providence Hospital

Sister Vincent Ferrier replaced Sister Mary Melanie as superior of the hospital, Apr. 23, 1908. On the former was now to devolve the overseeing of the new building then in contemplation. Sister Ferrier and Sister Macarius went to New York in 1909 to visit the leading hospitals, in order that the new Providence might have the benefit of all modern improvements. Work was begun on the new building in April, 1909. Messrs. Sommervell and Cote were the architects, and Mr. Philip Baillargeon, the builder. The corner stone, laid with impressive ceremonies, was blessed by Rt. Rev. E. J. O'Dea, May 2, 1911. The building was completed Sept. 1, 1911. On Sept. 8, the patients were transferred to their new quarters. The surgeries were opened Sept. 11, and fourteen operations were registered on that day. The formal opening of the hospital took place Sept. 24. Thousands came to inspect the new structure from basement to tower and to admire its modern appointments.

The graduate nurses of Providence Hospital organized their alumnae in the year 1914. The organization has accomplished thus far the purpose for which it was established, and with the increased membership and the continued interest of the members, greater achievements are confidently looked forward to.

The Golden Jubilee

On July 26, 27, and 28, Providence Hospital commemorated the completion of 50 years of service to the sick and poor of Seattle. None of the pioneer group of religious were present; the last one, Sister Aegidius, was called to her reward two years ago. The golden jubilee celebration opened on Tuesday morning, when His Lordship, Rt. Rev. Bishop O'Dea, celebrated pontifical high Mass in the hospital chapel. The sermon was delivered by Rt. Rev. Msgr. D. A. Hanly, P.A., V.G. A banquet was served at noon for the clergy, and in the evening there was a banquet for the doctors of the hospital staff. On Wednesday high Mass was celebrated by Rt. Rev. Msgr. D. A. Hanly and Very Rev. F. X. Kuhn delivered the sermon. A banquet was held for the alumnae at noon. In the evening a banquet was served to the 104 student nurses. On Thursday, Rev. Wm. Fisser, chaplain of the hospital, said high Mass, and the sermon was preached by Very Rev. William Boland, S.J. A reception for the general public was held from 3:30 to 5 p.m. A banquet was served in the hospital refectory in the evening for the employees of the hospital. There are 82 employees, many of whom have been with the hospital for fifteen years or longer.

Commencement Exercises

On the same evening the graduation exercises of the school for nurses were held in the Masonic Temple auditorium. Diplomas and pins were awarded to nineteen nurses by Dr. Harry Shaw, dean of the school for nurses. Addresses were delivered by Rt. Rev. Msgr. Theodore and Dr. R. F. Underwood. The musical program included harp selections by Miss Mary Providence Thomas, daughter of Dr. and Mrs. J. S. Thomas, and the first child born in the new Providence Hospital.

The present chaplain of Providence Hospital is Rev. William Fisser. Father Fisser possesses an ardent zeal and dauntless courage; he has besides, that greatest heritage, a noble character. Mother Praxedes of Providence is the superior of the hospital.

Social-Service Department.

Providence Hospital has a real, live social-service department. A "Sister visitor" goes to the homes of the poor. Sister Mary Conrad, director of the social-service department, is a familiar figure in the city of Seattle. Almost every day she goes out on her errands of charity accompanied either by another Sister or by one of the lay women who have been assisting her for years.

Sister Mary Conrad is director of the Ladies of Charity, a group of lay women now 25 in number. Every Wednesday afternoon they meet in the Sister's office to make garments for the poor. This good Sister has been doing social work for fifteen years. A summary of this work will give an idea of its scope: Visits to the sick in their homes, 3,468; visits to the poor, 7,183; families assisted, 489; visits to prisoners, 910; given to the needy in clothing and food, $11,059.45.

As a rule any parcel that finds its way to Sister Mary Conrad's office is intended for the poor. Occasionally a mistake occurs. On one occasion, a visitor left a package containing a suit of clothes. When he was leaving the building, he found that the Sister had send his suit of clothes to a poor man. Later he wrote the following verses commemorating this and two other incidents:

Kelly had a suit of clothes he didn't get;
The loss made Kelly stew and fret;
It was cold, and Kelly nearly froze.
Who knows what became of Kelly's clothes?
Ask Sister Mary Conrad.

Two sacks of spuds stood at the kitchen door,
They were samples, so the Sisters would buy more;
It made the little Nun stare
When she found each pomme de terre
Had been handed over to the worthy poor
By Sister Mary Conrad.

A woman came to sew one afternoon,
She said, "I may be going very soon."
She found a door and put her hat behind it;
Said she, "I'll know just where to find it."
A poor woman, walking slow,
Was handed the chapeau, and she said,
"God bless you, Sister Mary Conrad."

"My keys are lost," said Peter at the gate,
"At present, there is no more letting in,"
Said a Sister in dismay, "I threw your keys away,
So my poor would be sure of getting in."
'Twas Sister Mary Conrad.

The Staff

Paul V. Von Phul, M.D.

In accordance with the hospital standardization requirements of the American College of Surgeons, Providence Hospital inaugurated a staff in May, 1920. It was composed of 42 physicians, who, during many years had demonstrated their devotion to this hospital. From among them permanent officers and an executive committee of seven were elected; and a record committee of three and a program committee of three were appointed by the staff president. By-laws were adopted following earnest deliberation, and each member requested to fill out a registration card. After seven years of splendid cooperation, the staff and hospital management can be reasonably proud of the work accomplished.

Previous to standardization and its resultant staff organization, no permanent record was obtainable at a hospital, nor quite frequently from the physician regarding the diagnosis of a patient during a previous illness. It was often impossible (almost always so after the death of the physician) to ascertain just what findings the surgical operation had disclosed, what organs or parts of them had been removed, and what the condition of those left undisturbed. This lack of vital information occasionally entailed tragic results, as a lifetime of happiness or woe depended upon it.

Today this important information is available for all time. Into the record of every patient entering the hospital is written the history of his illness and whatever may have more or less important bearing upon it, also the results of the physician's complete examination, his diagnosis, the exact findings disclosed by the surgical operation, and the pathologist's diagnosis of tissues removed. Accompanying this record are also the special laboratory reports, those of the roentgenologist, or, if the case warrants, metabolism findings. The nurses' day and night records and the written opinions of any consultants are included in it.

It is the duty of the record keeper to see that all of the necessary data be written in the record, and most faithfully does she perform her task. When it is completed it is indexed and filed in the record room, to be available at any time, but it is not available to the merely curious visitor, and most securely is it guarded from any physician not entitled to know its contents.

The staff meets on the first Tuesday evening of each month. At each meeting the chairman of the record committee makes his report. It includes the number of cases admitted to the hospital durjng the previous month, also the number of discharged and their condition on discharge. It gives the number of medical, surgical, and obstetrical cases, the number of infections and their causes as determined by the bacteriologist's report, the number and causes of deaths and the number of improperly written records of cases, also the number of autopsies with the

PROVIDENCE HOSPITAL, SEATTLE, WASH.

pathologist's written report, and the number of provisional diagnoses agreeing or disagreeing with the final ones.

The physicians attending the hospital, as well as the members of the staff, soon realized that earnest, painstaking examinations and diagnoses of their patients were essential. All had to be in writing and subjected to the scrutiny of the record committee. Mistakes became embarrassing, and too many of them subjects for inquiry.

All unusually interesting cases are subjects for discussion at the staff meetings, and more frequently than not the members come to confess their faults, rather than to glorify their successes. The meetings are attended by many of the Sisters of the hospital, and all matters of hospital policy are discussed informally with those in charge. The closest cooperation is required, and freely given to benefit in large or small degree the service rendered by the hospital, all of which has greatly increased the burden to be borne upon the shoulders of the attending physicians and the hospital management, but it has rendered each patient a service of inestimable benefit.

The School of Nursing

Harry A. Shaw, M.D., Dean

With a deep sense of pleasure I accept the kind invitation of the good Sisters of Providence Hospital on the occasion of the Golden Jubilee of the institution to mention a few facts pertaining to our school of nursing. It has been my good fortune for the past 25 years to come in almost daily contact with the Sisters and nurses of this institution and to assist in a minor degree in the formation of the school of nursing. Therefore, without assuming an undue authority, I shall attempt to review in sequence a few of the more pertinent facts pertaining to the school of nursing of this great institution.

Prior to 1907, the nursing was done exclusively by the Sisters; but with the rapid growth of the hospital and in compliance with their splendid conception of duty to the public, the Sisters decided to accept young women of proper moral, physical, and intellectual qualifications as students in nursing. From its inception, the school has strictly adhered to the highest ideals of nursing education. Constantly alert and keeping abreast of the times, the governing powers of this school have consistently adopted all the newer ideas of nursing until I am truly justified in stating that the quality of our graduates compares most favorably with those from any school of nursing in America.

Upon the completion of this magnificent and modern hospital in 1911, with its greatly enlarged and ultrascientific facilities, an immense impetus was added to the forward progress of the school. It has been the constant aim of the Sisters, as well as of the physicians connected with this institution, to adopt and include in the curriculum all the broader and more modern conceptions of training in the nursing profession. In a broad sense the institution divides this training into three divisions:

1. The moral and ethical development of the student nurse.
2. The clinical education or the actual contact and care of the sick.
3. The purely academic and theoretical development of the student mind.

I mention first, the moral and ethical development, because it is with a deep sense of personal responsibility that the faculty receive the pupils for their three years of moral and ethical training. In viewing the progress of the hundreds of graduates, those in charge derive a greater sense of satisfaction from this branch of instruction than from any other single phase of the nurses' education.

I have placed next in order the clinical or practical side of their education, because no matter how theoretically perfect the graduate may be, without the intensely practical training as given in all the various departments of this great institution, she would fall woefully short in her duties to the public.

While I have placed third the didactic and theoretical side of her training, I feel it can be truthfully stated that no school in America offers a more thorough and developmental instruction than Providence Hospital. More than 35 of the leading physicians and surgeons of this city lecture and demonstrate, quiz and examine, not only according to the standards of the American Institute of Nursing Education, but in many instances far and beyond the usual and accepted requirements.

The splendid records of the graduates before not only our board but also before the examining boards in different states more than prove the exactitude and fairness of this statement. It is truly a beautiful thing to witness the development of our graduates from the time of their probationary period until their graduation. After all, perhaps the greatest factor in the school's development is the extreme care which is exercised in choosing the applicants before their admission to training; the school authorities realizing fully that the moral and mental development of the student nurse depends as much upon the high character and mentality of her associates as upon the clinical and technical facilities. In looking back over the development of the school, one cannot help but be impressed with how consistently the faculty have adopted the more advanced thought along nursing education. It is very fortunate that the school is under the observing eyes of Sister John Gabriel, who travels not only between the institutions conducted by the Order to which she belongs, but also into all the leading schools of nursing, as well as into educational institutions in general, ever alert to adopt that which is good and to drop the methods which have seemingly outlived their usefulness.

In keeping with the spirit of progress, the good Sisters have drawn the plans and within a few months will proceed to build at a cost of practically $300,000, a beau-

tiful home for the nurses in training. The building will embody the last word in every facility for the physical, moral, and intellectual development of the student nurse, as well as provide a delightful home and charming surroundings. With the completion of this building, it would be in no sense an exaggeration to say that the facilities for the proper training of student nurses will be unsurpassed anywhere in the world.

No article referring to the school would be complete without reference to the Sisters who have guided its immediate destinies through various periods of its existence. Those who are familiar with the beginning of the school of nursing look back with appreciation upon the preliminary organization and pioneer work of Sister Timoleon. Following her for the next sixteen years came Sister Callista, loved, respected, and honored without a single exception by every nurse fortunate enough to have obtained her training during her superintendency, and it was to our sincere regret that she was called away from this position to fill that of economist at St. Vincent's Home. The school is now under the direction of Sister Mary Magna, whose splendid executive ability, most gracious personality, and impartial justice, command the gratitude and respect of every student nurse. Perhaps her experience as graduate nurse before entering the sisterhood has given her an extremely practical insight into the numerous problems that confront her in her daily work. It might be mentioned, incidentally, that all three Sisters aforesaid are graduate nurses with a long line of practical experience and contact with schools of nursing, which is just another example of the care exercised by the governing powers of Providence Hospital in selecting the heads of various departments. Miss Margaret Felton occupies the position of instructress and upon her shoulders rests the daily supervision of the didactical and clinical work of the student nurses. Her duties are at times complex, as it is dependent upon her to note the daily progress of each nurse, acting as she does in the capacity of intermediate officer between the lecturing staff and the student nurse.

Surgery

W. C. Bates, M.D.

From the very dawn of human experience man has found surgery necessary to his existence. This art had its rude beginnings in prehistoric days when the pains of abscesses, ulcers, fractures, tumors, or decaying teeth cried out for mechanical relief. The earliest pictorial record of a surgical operation is an engraving on the doorpost of a tomb near Memphis, estimated about 2500 B. C.

Throughout the ages the progress of surgery, coupled with medicine, has moved hand in hand with the advance of the other arts and sciences. Wherever man thought, studied, built schools, and held life, truth, and human happiness sacred, surgery made great strides; wherever the people were enslaved by sensuality, contented ignorance, and superstition, surgery lay dormant or declined.

The advent of the Founder of Christianity initiated a new moral consciousness in humanity. Due to His example and teaching, the care and cure of the sick and infirm was no longer the result of the economic duty of the state or the inescapable responsibility of kin, but was inspired by the loftier conception of the common brotherhood of man. The Christians erected hospitals and asylums where they administered charity not only to their own people but to any persons, regardless of race or creed.

The centuries of modern history are crowded with names that have made inestimable contributions to the art and science of surgery, but the last century will probably be elevated for all time as the outstanding period of surgical development. This period claims the two supreme discoveries in surgery—general anesthesia and surgical asepsis. Ether anesthesia was discovered in 1842 by Crawford W. Long of Georgia, and chloroform anesthesia in 1847 by Sir James Simpson of Edinburgh. These wonderful discoveries enable the surgeon to administer mercy without cruelty. The other epochal contribution to surgery was made by Lord Lister in 1857, by teaching the surgeon to apply Louis Pasteur's discovery of microbic life in fermentation to the practice of antisepsis in operations and in the treatment of wounds. Before that a major operation, no matter how skillfully performed, was attended with appalling danger, due to the ever-present infection of the wound, especially in the wards of the hospitals. The last 50 years which mark the life of Providence Hospital, Seattle, have seen more advancement in surgery and medicine than the combined preceding centuries of history.

Providence Hospital had its humble start at Fifth Avenue and Madison Street a half century ago, when Seattle itself was in its infancy; from a frame house which could accommodate only thirty patients, it has evolved into the present modern edifice with 300 beds. During its first fifteen years this hospital had only one operating room, where an average of three operations a day were performed. In 1900 another surgery was added, and the number of operations increased to about eight a day. Today there are six spacious, well-equipped, ideally lighted, operating rooms, where asepsis is so completely carried out that the infection of a clean wound from without is practically unknown. Since 1911 the surgical department averaged 3,812 operations per year. In 1911 the operations numbered 2,558; in 1919, 4,700; in 1926, 3,403.

Providence Hospital not only has striven successfully to satisfy the demands of Seattle's steady growth for increased space, but has stood in front among the progressive hospitals of the west by adopting modern equipment and methods in hospital technic as quickly as their advantage or utility was recognized.

Obstetrical Department

Chas. D. Shannon, M.D.

The present obstetrical department of Providence Hospital was organized in 1911. Previous to that time the public had not yet been educated to the importance of hospital care in obstetrics and the cases in the old Providence Hospital at Fifth Avenue and Madison Street were few and far between.

In 1911 the capacity of the department was twenty beds and one delivery room, and the average number of confinements about 300 per year. In 1920, owing to the increased demand for space in this department, the number of beds was increased to 48, a large infant-bathing room, with three marble-top tables, adjoining the nursery, was installed. Providence Hospital from 1920 on had the largest obstetrical department of any Seattle hospital and still maintains its lead. Until recently "Providence" alone had two delivery rooms, the second being constructed in 1923. The average number of cases per month from 1920 to 1925 was 50. Since that time the work in this department has so increased that at the present day, an average of 65 babies a month first see the light of day at "Providence." The approximate number of babies born since 1911 is 6,847.

Under the very able direction of Sister Germaine, this department has flourished and prospered. The equipment is the latest and nothing has been left undone to make this one of the finest obstetrical departments of any general hospital in the United States. A graduate nurse with special training is on duty day and night and for the past year, a special graduate baby nurse. Miss Elizabeth Sullivan has been in the nursery for nearly eight years.

The future hope of those interested in obstetrics in the hospital, is that in the near future this department will be isolated completely from the rest of the hospital and that obstetrics will take its place with medicine and surgery as one of the three great divisions of the science of medicine.

The Laboratory

C. J. West, M.D., Pathologist

Although the bedside study of disease has been in progress for more than thirty centuries, it is only within the last thirty years that the laboratory has become an intimate part of this study. Modern laboratory methods began in 1880, when Professor Robert Koch first positively demonstrated bacteria as the cause of disease by growing certain germs artificially and by producing specific disease in animals by inoculating these animals with the artificially grown germs.

At first, this class of work was possible only in institutions of learning, but, gradually, as methods were simplified and knowledge increased, it became possible to carry on the work in private laboratories. Meanwhile, laboratory study was granting to the medical profession a wider and better understanding of the blood, the urine, and, in fact, all the secretions and excretions of the body in both health and disease. Slowly, also, the use of laboratory methods were being disseminated from central points to hospitals until, today, there is not a hospital of the first class which does not give to the incoming patients, all the benefits which may be derived from laboratory examinations.

To detail these examinations would require more space than is here permissible but they can be summed up by saying that the laboratory demonstrates the presence of things not normally perceptible to any of our five senses. For example: Sight, touch, hearing, taste, or smell could

not demonstrate the presence of a disease germ, an abnormal amount of sugar in the blood, or albumen in the urine, yet laboratory examinations may disclose the presence of any or all these. Summarized in another way: examinations are made (a) to disclose the presence of disease germs or their products, (b) of the blood and various secretions and excretions of the body, (c) of the tissues removed surgically.

Approximately 1,300 such examinations are made at Providence Hospital monthly. At this hospital, the work of the laboratory, or pathological department, is carried on independently of the surgical or medical departments. This insures to the patient a double verdict as to his condition in all cases where laboratory methods are applicable. For example, if the attending physician has diagnosed diabetes in a given case, the laboratory findings must confirm this diagnosis or the case is subjected to further study. Should the laboratory examination disclose that a nondiseased organ, such as ovary, appendix, or fallopian tube has been removed, the operating surgeon must show justification for such removal or be forever barred from further work at this institution.

Thus, instead of being a needless procedure, as some patients seem to believe, the addition of laboratory examinations to the usual hospital procedure, is of the greatest benefit to the incoming patient since its use conserves the interests of the patient. The attending physician, though competent, does not have time, space, or equipment to make many of these examinations because such examinations often require hours to complete; the space necessary is more than the usual physician's office occupies and many of the reagents must be in constant use to prevent mistakes from deterioration. For these and other reasons, it follows that many laboratory examinations are not practical to the attending physician but, instead, must be made at hospital or medical laboratories.

Department of Radiology

John T. Dawson, M.D.

Fourteen years ago Providence Hospital installed a department of radiology. Looking backward at those early days, one cannot fail to be impressed by the meager facilities available as compared with the wonderful modern X-ray equipment of the present.

At that time the cases averaged about twelve each month, and most of the work was done with a small hand portable machine. This was taken to the bedside of the patient, and amid a flurry of sparks and crackling noises a radiogram of an arm or perhaps a leg was taken. Patients with fractured ribs, pelves, or femurs were usually brought to the X-ray department on the sixth floor in their beds. This necessitated putting improvised rollers under the patient's bed, trundling it to the elevator, and wheeling it to the X-ray room where with the consumption of much time and effort a plate was taken. These single-coated glass plates were of very inferior quality, the equipment inadequate, and the technic of hit-or-miss variety. At each exposure the tube changed from high to low, or vice versa, and then had to be exhausted. The color of the tube indicated when the exposure was to be made, as it was impossible to maintain anything like a constant spark gap.

Shortly after this, after considerable research work, new and better equipment began to appear. Double screens, cassetts, duplitized films, and the Potter-Bucky were still in the experimental stage. The hospital management decided to install a new and complete X-ray laboratory, with added space, as the previous quarters were entirely too small. From then on new equipment has been added, from time to time, so that today Providence can boast of a complete modern X-ray laboratory, for both radiographic and therapeutic work.

A great advancement is the so-called bedside unit in fracture cases. Radiograms can now be made at the patient's bedside without disturbing him in the least, and a retake is seldom necessary. With perfected technic and well-trained technicians, the possibilities of the equipment can be gauged to a nicety.

No modern hospital is today operating without a complete X-ray department. Every physician, surgeon, and dentist depends upon the X-ray for diagnosis and prognosis in the larger portion of his cases. There is no region of the body that at some time or other is not subject to a searching examination for the detection of disease or injury. We can cite many cases where the treatment of some condition would have proved complicated, and the outcome very doubtful, if it had not been for the aid of the X-ray examination.

Roentgenology as practiced today, in the opinion of the writer, stands out as a contribution to medical science excelled by none other. It takes its place as an important factor in teaching in the medical schools and hospitals, and means much to the physiologist, anatomist, pathologist, and clinician. Advances in many lines of science are dependent on the discovery and application of some new method. With the standardized equipment, and perfected technic of today, we are able to give the student of medicine the value of thorough and complete X-ray studies, so that later his patients will receive the real aid that roentgenology can give them. In problems of interpretation he will avoid hasty diagnosis, and never express conclusions until a careful study of the case has been made.

The immediate use of the X-ray is called for in a large number of conditions. Reduction of many of the simpler fractures, with the aid of the fluoroscopic screen, enables the physician to make the proper reduction at the first attempt, lessening the time in the hospital, and the amount of anesthetics for the patient. Roentgenology is necessary also in ulcers and early malignancies of the intestinal tract, calculus of the urinary tract, acute diseases of the bones and joints, as osteomyelitis and many allied conditions. It is a panacea for the thymus in the newborn, for relief of pain and a brighter outlook for the patient suffering from malignancies beyond surgical aid, and in a large number of curable cases. In diagnosis of obscure, also rare conditions, congenital defects, and in many conditions too numerous to cite here, the X-ray is daily proving invaluable.

Can you imagine the consternation, that would reign, should the medical sciences be suddenly deprived of the uses of the X-ray? Its place is secure; its uses many, and it is proving of great benefit to mankind. Providence Hospital may be proud of its work thus far in the department of radiology. It has kept pace with other standardized hospitals in the acquisition of improved equipment, and the development of the latest technic.

The Orthopedic Department

H. T. Buckner, M.D.

Along with other specialties the orthopedic department is gaining a position of great promise, and has developed from a small beginning into a real department. It is under the supervision of Sister Mary Sabina, and has facilities for treating all bone cases in children as well as adults. Its chief bid to fame is the invention and development of a new fracture bed, a surgical-dressing cart, and a fracture-equipment cart. Not only were these new and entirely original conveniences, in the treatment of fracture cases, designed but also manufactured in Providence Hospital. So practical and efficient are they, that Dr. R. G. Broderick, the hospital consultant, on his recent inspection, was most interested in and very favorably impressed with these outstanding advancements in the treatment of fractures. A detailed description of these three innovations will be of interest to those who have not had the opportunity of personally inspecting them.

Fracture Bed

The fracture bed is seven feet, six inches long, being longer than the average hospital bed, in order to allow adequate extension, so necessary in pulling the fractured limb into place. The frame upon which the patient rests is adjustable at both ends so that the head or foot may be lowered or raised according to need. At the head is an adjustable back rest. There are overhead adjustable bars which permit the fracture part to be suspended and thus allow the patient to change his position, while at the same time they permit the fracture part to be put in any position necessary to obtain and maintain a reduction. In addition, there are double pulleys at each end of the overhead frame through which ropes are passed and attached to another frame that rests upon the bed. These ropes are also passed through pulleys on a windlass at the head of the bed; the handle on the windlass facilitates movement. The windlass is used to lift from the bed those suffering from serious injuries, especially injuries of the back, and it does so with the minimum amount of discomfort to the patient and of exertion to the nurse. The bed is adjustable and can meet almost any demand in the treatment of a fracture where the bed treatment is necessary. We realize that the fracture bed is facing a great future and that as time goes on it will be improved to meet various exigencies.

The Surgical-Dressing Cart

The surgical cart was designed so that the necessary supplies for the dressing of fracture cases might be placed thereon and the cart be wheeled from room to room with-

out any effort. Practically all dressings of fracture cases are applied in the rooms for the reason that these patients cannot be taken to the surgical-dressing room. The cart saves time and work carrying with it everything needed by the surgeon. It has three shelves; on the upper one is an electric sterilizer for the sterilizing of the instruments used; on it are also the required drugs and chemicals. On the lower shelves are the dressings and supplies. On the back of the cart is a wash basin and its drain bucket; on the top, two jars for hot and cold water; these have pipes leading to the wash basin; there is also a bucket for the soiled dressings.

The Fracture-Equipment Cart

This was designed to carry everything needed in the setting of a fracture. Here again, the work is done in the patients' rooms, and the cart, rolled into the rooms, dispenses with much going back and forth. It is divided into two parts, the lower part being a deep drawer for the leg splints and the other large splints in general use among surgeons. The upper section is divided in two, and has ten drawers on one side; in these are kept extensions, tools, twine, cord, etc.; in the other are kept small splints, weights, etc.

The Pharmacy

W. F. Gardineer

Nursing and medicine have always been closely associated. The ancients bathed wounds and dressed them with oil and baisams. In the home a small supply of medicine was usually at hand and kindly neighbors lent their aid. Gradually there evolved the group idea of the care of the sick, and medical science always kept in step or advanced new theories and practices for the control of pain and disease.

When the Sisters were at the county farm in 1877, their supply of drugs was limited to a few bottles of medicine that could easily find place on a narrow shelf four feet in length. This necessitated sending outside for practically everything needed in the line of medicine. The first attempt to organize a pharmacy was made in the hospital on Fifth and Madison Streets. Although the quarters were limited, the pharmacy was in a short time so well equipped that the Sisters were able to take care of all immediate requirements.

When the present Providence Hospital was planned, provision was made for a pharmacy which should be perfect in every detail. Every convenience and device that seemed desirable was installed. Few outside of the immediate attendants realize the necessity of a well-equipped pharmacy in an institution of this size. So much depends on the promptness with which medicines can be obtained, and the availability of the special medications the various physicians are accustomed to prescribe that the pharmacy department is a very important factor in a hospital, especially in one of more than 300 beds.

It is interesting to review the activities and growth of the pharmacy from the humble beginning of a four-foot shelf to its present beautiful quarters. The pharmacy includes three well-equipped rooms. In the first are wall cases with glass shelving on which are bottles with their contents plainly labeled. Below these are cupboards stocked with powders, tablets, herbs, etc., everything that can be found in any first-class city drug store. A glass-top counter, a bookcase, a desk, two typewriters, and chairs complete the furnishings of the first room; the woodwork is painted in imitation of ivory; a few pictures adorn the walls, and potted plants add another touch of beauty to this room. The second room is where all the prescriptions are filled. Fancy the restoratives sent out from this room and the care and precision called for by each prescription. The third room is used for storing, and even here perfect order reigns.

The Sister in charge of this department is a registered pharmacist and has been connected with Providence Hospital for many years. Persons familiar with pharmaceutical work have spoken sincerely of her efficiency and of the care and thought apparent in the governing of this model pharmacy.

The Department of Records

Agnes Carney, R.N.

Case records, over 35,000 of them, filed neatly away in the cabinets of our record room since 1920, in which year this department was opened. Is this not evidence of the striking period of transition through which our hospitals have gone in the past few years?

The keeping of records came about in a natural fashion. Long ago, as the practice of medicine developed into a profession, the doctors began making and keeping records for themselves of the condition of their patients and of what they did for them. These records were an effort in the interest of the patient and humanity in general. Then a few years later, the standardization of medical schools was accomplished. As a natural sequence to this great achievement in the medical world, came the standardization of the hospital. It was readily seen that the profession, as a whole, had a duty to the public through the channel in which the public is treated, namely, the hospital. One of the most important services a doctor renders his patient is that of keeping an accurate record of his case. When the patient enters the hospital, the hospital, too, becomes vitally interested and shares the responsibility of his case record. The keeping of case records is, of course, only one phase in the system of standardization of hospitals, but is one of vital importance.

What are case records? They are the tangible evidence of the high standards of professional work. They are a direct test of a doctor's efficiency. These records are the scientific data which pertain to each patient treated in a hospital. Each record should be the composite picture of the symptoms, findings, treatment, and end results of a disease. Case records are a pledge of loyalty of service on the part of the hospital to its community. The more deeply one considers the subject, the more one realizes their value. They exist primarily in the interest of the patient, but their benefits reach out to the doctor, nurse, hospital, and general public. Their value is almost inestimable.

To the patient, they are an assurance that his case will be studied in the light of every possible means available and a proof that such has been done. The laity know that when they enter a standardized hospital, a record of services rendered is made and preserved for future reference. In event of later complications, and the patient reenters the hospital under the direction of the same or a different doctor (or in case of a doctor's death), his previous record would prove of great assistance and aid to the doctor in reaching a more prompt and intelligent diagnosis. The facts recorded thereon might prevent an operation or the expense of more X-rays or laboratory work. Perhaps a patient has been in an accident and later attempts to claim damages. To prove his injuries, the hospital record would be most valuable evidence in court, and very often on their completeness and accuracy depends the verdict.

The doctor as well as the patient is benefited by the hospital records. In his study of medicine, the variable factors of judgment and variations in individual patients are always present. Reference to case records offer him invaluable means by which he may profit from the experience of others. Correct medical statistics can be collected very readily from the "cross-filing system of diagnoses." An accumulation of true, complete, and concise records are the scientific data by which the medical research worker can prove his theories. A case record also serves as a safeguard to the doctor, for instance, in a suit for alleged malpractice. No eloquence of his attorney could be more persuasive in the doctor's favor, than the silent pages of an authentic, well-written record made in the hospital, exhibiting in black and white, the actual facts of the case.

A vast improvement has been shown in recent years in the keeping of records. In the beginning, they were a simple, primitive affair and nearly always destroyed when the period of hospitalization of the patient ended. It was no easy matter to change the established customs, but the zealous crusaders of standardization succeeded in subduing the clamor of protest which arose among the profession when first they promulgated the rules and regulations regarding case records. Today the realization of the great work which they began dawns clearly upon us. There rests a serious obligation upon us to continue in their footsteps. Let not the efforts of our predecessors be in vain! Have the medical and nursing staff of Providence Hospital endeavored to carry on this great work? The case records prove the answer to be in the affirmative. But as a word of warning, let us not stand still! Let us strive to attain perfection in our records. In the scientific world, we must go forward. Let our watchword ever be "progress."

The Field of Physical Therapy

Mary E. Stack, R.N., Physical Therapist

Medical practice has been aptly defined as the art of combining all arts and sciences in the prevention and relief of human ailments. The true physician gives the patient what is best, whether a drug, a physical agent, or a mental suggestion. As quickly as the efficacy of the

various physiotherapeutic measures are demonstrated he adds them to his armamentarium.

Physical measures were utilized in the relief of pain, sickness, and injuries even before herbs or drugs. The first to be used among these agents were water, sunlight, massage, heat, and cold. Electricity was first used a century ago. The branches of physical therapy have made more scientific progress in the last score of years than they had made together up to that time. They received their greatest impetus by the World War, which supplied material for millions of physical-therapy treatments, and the results have been so universally gratifying that physical therapy has established itself on a secure basis among the branches of scientific medicine.

Only a few of the medical schools have as yet accorded physical therapy a place in the curriculum, but there are several schools of physical therapy that graduate women of good education who previously had adequate training in nursing. These practitioners in a hospital physical-therapy department stand in the same relation to the physician as the pharmacist, the physician prescribing the kind and quantity of treatment.

Providence Hospital was one of the first private hospitals under standardization to equip a complete physical-therapy department, where the most modern apparatus are available for administering treatments in phototherapy, hydrotherapy, and electrotherapy. It is beyond the scope of this brief article to indicate fully how invaluable is the service the department is rendering the sick and injured of this community, for instance, the recovery time in fractures can be reduced by about one third, and in sprains and bruises the proportion of time reduction is much greater.

In the first half of 1927 a total of 2,300 treatments were given in the physical-therapy department of Providence Hospital. The demand is steadily increasing. Favorable results have been produced in a large variety of diseases and traumatic conditions. The most frequent agent employed is electricity through diathermy, the alpine lamp, and the galvanic and faradic currents. The alpine lamp has been found useful in intestinal stasis, colitis, rickets, anemia, rheumatism, and neuritis.

The Dietary Laboratory

Ida Bonner, B.S., Dietitian

Every patient sent to the Providence Hospital whose physician recommends special dietary treatment, finds particular attention paid to his case at the dietary laboratory. Upon the prescription of the physician, the dietitian carefully adjusts a balanced, varied, and appetizing diet in the endeavor to bring the patient's condition back to normal.

The special diet laboratory is equipped with cooking and weighing apparatus, and especially ordered and selected foods. The special menu is arranged, prepared, set up, and sent to the patient directly, constituting the desirable central service. A graduate dietitian, trained in special diet and disease, is engaged by the hospital, and has charge of the laboratory where she is assisted by two student nurses who are making their training as nurses more valuable by their experience in cooking and instruction in special diets. A staff of reputable physicians direct their patients to the hospital for treatment which the special-diet laboratory is able to provide. Such diseases of metabolism as diabetes, mellitus, Bright's disease, hypertension, obesity, and thyroid diseases have received attention at the laboratory. Gastrointestinal diseases as gastric ulcer, colitis, hyperacidity, and anacidity have also been receiving administration from the dietary department.

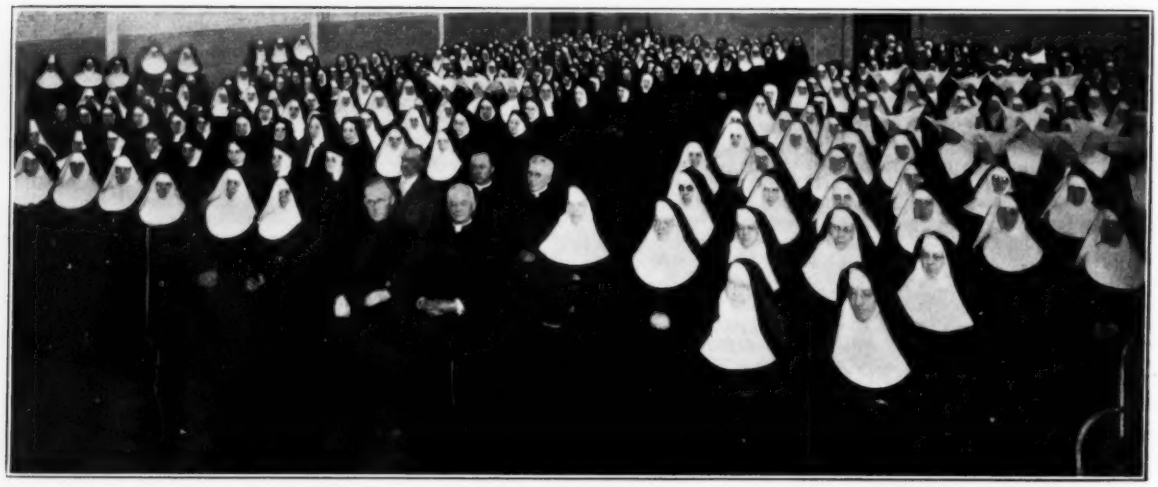
Special diets require particular attention in the form of strictly selected foods and carefully weighed proportions to meet the needs of the individual patient. This diet must also be near enough a well-balanced normal diet to be adaptable to the patient's mode of living after he has left the hospital. This program is made complete by frequent visits that the dietitian makes her patients. She observes their progress and determines their improvement. Under the direction of the attending physician the dietitian explains the nature and work of the disease, the value of certain foods to counteract the disease, and provides a chart which the patient is able to follow upon his leaving the hospital. The dietary laboratory in a hospital is indicative of the hospital's progress and its interest and belief in the scientific treatment of diseases through special dietary measures.

Marquette Hospital Institute at Buffalo

THE College of Hospital Administration of Marquette University, Milwaukee, Wis., conducted the first of a contemplated series of "Hospital Institutes." This Institute was held at Canisius (Jesuit) College at Buffalo, N. Y., during the week of Nov. 28 to Dec. 3. Local arrangements and program were in charge of Rev. John P. Boland, Ph.D., diocesan director of the Catholic Hospital Association of Buffalo, assisted by Father Cusick, S.J., president of Canisius College. All classes were held in a large committee room of the college and the closing meeting, attended by nearly five hundred Catholic Sisters of the Buffalo Diocese, occurred in the college gymnasium. This

FIRST HOSPITAL INSTITUTE, NOV.28-DEC.3, 1927, CANISIUS COLLEGE, BUFFALO, N. Y.

First row, left to right: Rev. John P. Boland, Ph.D., D.D., diocesan director and chairman of the Institute; V. Rev. Peter F. Cusick, S.J., president, Canisius College; Rev. C. B. Moulinier, S.J., LL.D., regent, College of Hospital Administration; Miss Adelaide Mayo, R.N., State Board of Nursing, Albany, N. Y. Extreme right: M. A. Higgins, M.A., professor of Architecture, College of Hospital Administration.



HEALTH MEETING FOR SISTERS OF DIOCESE, HOSPITAL INSTITUTE, BUFFALO, N. Y.

institute was planned by Father C. B. Moulinier, S.J., regent of the College of Hospital Administration, Marquette University, and was the first of its kind ever held in the United States, if not in the world.

The program, as given in full below, was designed to be of direct and practical interest to the hospital worker, dealing with specific problems, and discussing these in lecture, questionary, and round-table form. A class of thirty-three registered students attended, representing hospitals in Buffalo, Elmyra, Syracuse, Niagara Falls, Binghampton, Rochester, Albany, and Baltimore. In addition there were present many guests, including priests, doctors, nurses, and consultants from the New York State area.

The Institute was the first of the series contemplated for American cities by the College of Hospital Administration in order to carry its successful short-course work at Marquette University out into the hospital field of the country, for those Sisters and communities unable to leave their immediate stations. Every effort was made to eliminate the usual theoretical and general discussions, and to concentrate on the practical and current problems of hospital construction, administration, and operation. An unsigned questionary returned by the Sisters at the closing meeting was unanimous in pronouncing the Institute a thorough success and well worth the time and money expended by each individual. After each lecture there was a thorough discussion, including examples of the problem involved from the various institutions represented. The local newspapers followed the course with particular interest, having a representative at nearly every lecture, and presenting excellent reports of each day's proceedings in both morning and evening editions.

The next institute of the series will be at the University of Detroit, Dec. 26 to 31, inclusive, under the local auspices of Father Jno. P. McNichols, S.J., president of the university. The Buffalo program will be substantially repeated at Detroit. Following this, it is contemplated to hold similar institutes in other American cities, such as Brooklyn, St. Louis, Cincinnati, Denver, and Los Angeles.

Hospital Institute Program
Buffalo, N. Y.
Nov. 28 to Dec. 3, 1927

Under the auspices of Canisius College, Buffalo, N. Y. Assisted by faculty members, College of Hospital Administration, Marquette University. Promoted by the Catholic Hospital Association of the United States and Canada. Lectures and Demonstrations held at Canisius College, Buffalo, N. Y.

Monday, Nov. 28

9:00—10:00—Registration—Canisius College.

10:00—11:30—"What are the Most Important Things to Know about your Hospital?" Rev. C. B. Moulinier, S.J., Regent, College of Hosiptal Administration; President Catholic Hospital Association.

11:30—12:00—Conference, Rev. C. B. Moulinier, S.J.

2:00— 3:00—"How to Avoid Mistakes in Planning your Hospital," Mr. M. A. Higgins, M.A., Professor of Architecture, College of Hospital Administration, Marquette University.

3:00— 4:00—"The Modern Crusade for Art in the Hospital," Miss Leah Lee Stimson, R.N., Professional Lecturer, College of Hospital Administration, Marquette University.

Tuesday. Nov. 29

9:00—10:00—"Things to Do, and Not to Do, in Monthly Staff Conferences," Rev. C. B. Moulinier, S.J.

10:00—10:30—Round Table Conference, led by Rev. C. B. Moulinier, S.J.

10:45—12:00—"The Sense of Service Reflected by Art in the Hospital," Miss Leah Lee Stimson, R.N.

2:00— 3:00—"The Relation of the Hospitals to the Architect and Contractor," Mr. M. A. Higgins, M.A.

3:00— 4:00—"Construction and Planning—Questions and Answers," conducted by Mr. M. A. Higgins, M.A.

Wednesday, Nov. 30

9:00—10:30—"Ethics in its Application to Hospital Life," Rev. John P. Boland, D.D., Diocesan Director, Catholic Hospital Association for Diocese of Buffalo—Rev. C. B. Moulinier, S.J.

10:45—12:00—"Art and the Healing Art." Miss Leah Lee Stimson, R.N.

2:00— 3:00—"Heating and Related Problems," Mr. M. A. Higgins, M.A.

3:00— 4.00—General Discussion of Heating and Ventilating, Mr. M. A. Higgins, M.A.

Thursday, Dec. 1

9:00—10:30—"What is the Meaning of Standardization?" Rev. C. B. Moulinier, S.J.

10:45—12:00—"Equipment and Organization of Physical-Therapy Departments," Mr. R. T. Lorish, Chicago, Ill.

2:00— 3:00—"Equipment and Organization of the Department of Roentgenology," Mr. C. H. Renaud, Rochester, N. Y.

3:00— 4:00—"Religion in the Hospital," Rev. John P. Boland, D.D.

Friday, Dec. 2

9:00—10:30—"What Should the Clinical Record Show?" Edward P. Philbin, M.D., Our Lady of Victory Hospital, Lackawanna, N. Y.

10:45—12:00—"Specific Nursing-School Problems," 1. Entrance Requirements. 2. Curriculum. 3. Coordination with Hospitals (Symposium). 4. Rating. Adelaide R. Mayo, R.N.

2:00— 4:00—General Round-Table Conference, led by Rev. C. B. Moulinier, S.J., assisted by Rev. John P. Boland, D.D., Mr. M. A. Higgins, M.A., Miss Leah Lee Stimson, R.N., and others.

Saturday, Dec. 3

9:00—12:00—Health Meeting for Institute students and all teaching Sisters of Buffalo and vicinity, Canisius College Auditorium, Buffalo, N. Y.